Textile World Journal

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FACT AND COMMENT

EXPORTS of flax from France have been prohibited by a Government decree.

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IT is noted that Italy and Portugal are the two countries where the French franc is still above par.

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AN exhibition of Canadian goods, including textiles, will be held in the Royal Agricultural Hall, London, from June 3 to 17.

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IMMEDIATE substitution of fuel oil for coal in French industries has been recommended by a Governmental Committee in that country.

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THE United States furnished only 2½ per cent. of the total imports of cordage into China in 1918.

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THE growth of the cotton manufacturing industry in Finland is indicated by the fact that production has nearly quadrupled in the last twenty years.

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THE absence of cotton mills in Mesopotamia accounts for the fact that 50 per cent. of all imported into that district consists of cotton cloth.

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ESTIMATES of the damage done by the war to industry in France place the total at 17,625 million francs.

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PRODUCTION; More Production; still more Production is what we need to bring about a more stable condition in the commodity prices.

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A SALE of Government cloth second only in size to that of airplane linen has been made in Great Britain where two million yards of gabardine were sold at an amount said to be nearly $5,000,000.

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MEXICO needs the cheaper grades of thread according to Consul Dow of Ciudad Juarez, who adds that the better qualities are in less demand in that district.

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THE average rate of dividend of Japanese spinning-mills quadrupled in the first half of 1919 as compared with 1914 figures. Capital invested showed an increase of over $42,000,000, compared with the same period.

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A REPORT to the Department of Commerce states that Dutch interests have arranged for the granting of a revolving credit of about $24,000,000 to German manufacturers for the sale to Germany of raw materials including cotton and wool.

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ENGLAND has supplanted Belgium and France in supplying yarn to Brazil for the manufacture of fine cashmeres, owing to the damage done to the textile industry in those countries during the war.

* * *

REPORT from this city says a towel manufacturer sold turkish towels at over $19.00 a dozen, which would mean nearly $3.00 over the counter to the public. And to think paper is going up too. One man proposed to buy an electric fan and install it near his shower.

A DETAILED plan for the reduction of the cost of living was drawn up at a special trades union congress held in London on December 9. The necessities of life were considered separately and individual recommendations made in each case.

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OF interest to those manufacturers who are contemplating the substitution of oil for coal as fuel is the fact that a similar transformation on the *Aquitania* will result in the saving of 300 men in the personnel.

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GERMAN exporters who have always done a large business in Spain before the war, are reported coming to that country again on German ships and through Switzerland. When the Spanish buyers offered payment in marks, the German exporters refused to accept them, saying they would sell only for pesetas or other foreign currency.

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ADVICES from England that railway rates in the United Kingdom, in so far as they affect wool textile goods, will be increased 60 per cent., as of January 15, 1920. These increased charges will of course enter several times into the cost of production, and distribution, in handling the wool from the ports, and in movements at various stages of manufacture until the finished goods reach the consumer.

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"THEIR Never-Failing Instinct" is the heading given by the American Chamber of Commerce in France, in its *Review*, to an item telling of the reported theft by the Germans of American provisions for Poland, stored at Danzig. It adds that the Prussian authorities have been forced to restore a part of the goods stolen during the last three months which reached a total value of over 12,000,000 francs.

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INCREASED numbers of workers are employed in ten of the thirteen leading industries are shown in figures recently made public by the Bureau of Labor statistics. Eleven industries showed an increase in payroll, as compared with December, 1918. Men's ready-made clothing showed an increase of 96.4 per cent., and the woolen industry, 58.7 per cent. Compared with November, 1919, in December there was an increase in the payroll of twelve industries, with cotton manufacturing leading with an increase of 23.7 per cent.

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THE effect of an invasion of imported products upon a high price situation was indicated recently when a shipment of Danish butter reached this country. Commission merchants who had been holding their butter at prices well above figures offered them by buyers, found themselves glad to sell at a price they could get, and yet the shipment was not of very large size. Psychology has much to do with it. The appearance of foreign-made textiles in anything like sizable quantiy would have a similar effect.

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THE scarcity of houses in the manufacturing districts of England, has led to a novel scheme in that country, for meeting the shortage of female labor for the Derbyshire hosiery trade, according to recent advices from abroad. Brettle & Co., manufacturers of hosiery, at Balper and Nottingham, found it impossible to transfer labor from one district to another, because of the lack of houses. Therefore, they decided to take the mill to the labor. Wirksworth, an old-time town of Derbyshire, with tape weaving as a staple industry was the first place to receive attention. Manufacturers in this country will be interested to learn that female hosiery workers receive from $12 to $15 weekly.

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THAT profiteering on the part of manufacturers has sandbagged the public, rather than by merchants who deal directly with the public, is the assertion made by Senator Capper. He is also quoted as admitting, "No doubt there is price-gouging by some of the retailers, but it is the goods when they leave the factory to which the administration's best attentions should be first directed." We wonder just how far the Senator conducted his investigation on this subject, also whether he was speaking as a Senator, or the owner of a newspaper with the advertising of the retailers to maintain.

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WARNING of a car shortage during the next two months has been issued to shippers by Director General Hines, with a request for continued co-operation to make the best of the situation. Equipment has been pooled to equalize the inadequate supply of cars as far as possible; circuitous routes have also been eliminated so as to save time. The loading per car fell from an average of 29.2 tons in the first eleven months of 1918 to 27.8 tons for the same period in 1919, a decrease of 4.89 per cent., representing a loss of 105,000 freight cars, available for loading.

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THE American Chamber of Commerce in London is reported to be receiving co-operation from the British government Board of Trade in protecting American trade-marks in Great Britain. The Chamber wrote to the Board of Trade calling attention to several articles made in England, which bore the American flag, and words and phrases implying American manufacture, and giving a false impression. Red tape was shattered when the Board of Trade telephoned for more particulars, and then took the matter up personally with the British manufacturers using these trade marks, and later reported to the American Chamber of Commerce that they had agreed to refrain from the use of these marks.

* * *

REPORTS from the Bureau of Foreign & Domestic Commerce state that ramie fibre, also known as China grass, or vegetable fibre, is principally obtained from the provinces of Hunan and Hupeh. There are three crops, the first marketed in June and July, the second, August and September, the third in October and November. American importers seem to prefer the Yuenkong, which is the best quality; the second grade. Wuchang, is also said to be very good at times, but runs rather unevenly, while the Poochi is a coarser fibre, not very well known here, but generally exported to France. China grass is packed in compressed bales of 600 to 800 lbs. each. The prices reported in October, 1919, per picul, or 133⅓ pounds, were: $16.60 for the Yuenkong; $15.98 for the Wuchang, and $15.37 for the Poochi.

Textile World Journal

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(Subscription rates and other information will be found on page 21)

A TENET OF OUR CREED: WE BELIEVE IN THE CONSERVATION OF AND PROTECTION TO DOMESTIC INDUSTRIES.

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CULTIVATING FOREIGN TRADE

THE recommendation of Secretary Lansing that the State Department be thoroughly reorganized along efficient and modern lines in a report submitted to the Senate has an intimate bearing on the future success and development of an export trade. The continuance and enlargement of a business with foreign countries which was forced upon us by the exigencies of war will depend in large measure upon the aid and encouragement rendered by our official representatives abroad.

It is pointed out by Mr. Lansing that in international matters commerce and politics are inextricably interrelated, and that because of this fact the diplomatic and the consular services must be brought into closer relationship and co-operation. He says further that in the extension of foreign trade the role of diplomacy is almost preponderant, and declares with emphasis that "the machinery of government for dealing with our foreign relations is in need of complete repair and reorganization."

If the war in 1914 came as a surprise to this country, chiefly because, as the Secretary points out, the State Department through inadequate equipment had been unable to gather information and interpret it in a manner which would reveal the hidden purposes of the Government by which hostilities were started, how can merchants in the commercial conquest that must be waged expect to receive the information and the co-operation which are necessary to achieve international supremacy?

With better salaries for diplomats and consular agents, with residences provided for both, there will be attracted to the service a class of individuals who can render the character of service that the business men must have in cultivating foreign markets. While a certain amount of aid has been furnished in the past the room for improvement is very great and it can only come from the raising of the personnel of Government representatives. There must be an attraction for men of ability to serve in these outposts of civilization and they must be recognized as a very essential factor in the upbuilding of our international trade.

But the foreign representative cannot do it all. Responsibilities rest upon the domestic merchant who would see a permanent market abroad for his products. The charge has been made by buyers who have come to this country in their need to interest Americans that we are provincial. The story has been recently told of a man from India who declared that when he told where he was from he was first understood as hailing from Indiana, but who after further explanation as to his native country found a woeful ignorance as to the possibilities of trading with such a far-away land and little apparent desire to learn.

It must be remembered in considernig export business that we are comparatively new at the game. We have not inherited the knowledge of export details from our forefathers as has the Englishman who is so dependent upon his export markets for distributing his merchandise. We have not felt the urge of the export outlet, and especially we do not feel it under existing conditions. It is pretty difficult for the average textile merchant to understand why he should cultivate export customers and learn the needs and requirements of individual export markets when he cannot see any chance of supplying the demand which lies close at hand in the markets of this country. He agrees that he may need the export buyer at some time in the hazy future, but it is time enough to cross this bridge when he comes to it, and in the meantime he will bend all his energies to securing an increased supply for the satisfaction of his domestic customers.

But what of the trade that has been built up during the war, because the export buyer has been compelled to come to this country? Is it possible that this same export buyer will continue to seek the American seller for an indefinite time if he is unable to secure what he needs? He may desire to do business in America because of the international friendships that have been inaugurated by the war, but his commercial sense will not permit him to continue to trade where he cannot be satisfied. As other countries, where he formerly bought his merchandise, regain their normal ability to satisfy him he will gradually drift back into his pre-war habits of operation and the more newly formed friendships and associations will be forgotten.

It is futile seemingly to argue for preparation against the lean years when the days of plenty are at hand, but if ever the American textile industry is to occupy an important place in international trading now is the time to fortify the position which has been taken and even at possible sacrifice to build for permanency along lines that have been established by other nations as successful. Co-operation of individual merchants and Governmental representatives can be most potent in developing a character of international relationship that may mean much in the years to come, and who knows how soon such a status will be most acceptable, if not necessary?

PROFITEERING AND SPECULATION

THE policy of establishing a price on goods which shows a fixed margin of profit over and above cost, irrespective of ability to secure a higher plane of quotations is evidently receiving the serious consideration of an increasing number of sellers. This is particularly true in the cotton goods market.

An illustration of this statement has been brought to light this week. The naming of prices on outing flannels for another season has disclosed, in at least one instance, a determination not to quote the highest possible figures that the traffic will bear. This attitude is plainly not caused by any desire to underbid competitors in an effort to secure needed business. It is understood that the corporation in question is not selling to concerns who were not on its books last year. It is patent that a fixed policy has been adopted by this house from which they refuse to deviate and this policy has as its mainspring the cementing of relations with a selected list of customers so that these buyers will be in duty bound, when conditions shall have changed, to reciprocate for the high class treatment they have received during a period when the market was entirely in the seller's favor.

This method of merchandising may be criticized by those factors in the market who are determined to secure the last possible fraction of a cent that conditions would seem to warrant them in seeking, but at the same time the preponderance of argument would seem to be on the other side. If the buyer is to be exploited during his time of need he is likely to remember the treatment when the boot is on the other leg. In other words, the determination to base profits upon actual costs would seem to result from a long look ahead and not based upon the temptation to extort the last penny from the man who cannot help himself. A merchant having such ideas of merchandising looks further than the end of his nose and is likely to benefit ultimately by his perspicacity.

Another element, however, enters into the refusal to sell those who were not on the books last year. Much has been written about the presence of speculators in the cotton goods market and the reason for their existence and activity. Doubtless in many instances sellers are responsible for cultivating this type of speculative buyer. It is encouraging, however, to note that there is an increasing number of cotton goods merchants who are scrutinizing very carefully the credentials of buyers in order to be sure that the merchandise sold them is distributed in a way which may not serve as a boomerang some day or other. It has been a temptation for buyers who have no intimate knowledge of conditions to operate on a market where the sale of goods they have bought results in inordinate profit. A good many of this class have developed during the last year and their purchases have represented a large volume. To indicate the character of these operations one illustration is sufficient. It is related that a certain lot of merchandise has been sold four times since the first of the year by a broker for one of these speculators who has been noted for his operations. Each time a profit was made for both parties to the transaction. In other words, there have been eight transfers of the lot within a month involving a much higher eventual price to the ultimate consumer than should have been necessary under normal conditions.

The prevention of such procedure would seem to be possible if the general market will adopt the policy initiated by the house in question, beside engendering a better relation between the buyer and seller that may stand the latter in good stead when the much-talked-of change in conditions takes place.

RESPONSIBILITY FOR AMERICANIZING

THAT responsibility for the Americanizing of non-English speaking and thinking immigrants should rest upon the Federal Government, and not upon our industries and communities, has always been the belief and assertion of this paper. But it needed the menace of Bolshevism and the recent wave of radical propaganda to impress Congress with this fact, and impel the drafting of a bill that recognizes this fact and that will oblige the Federal Government to divide the expense equally with co-operating States. This is the Kenyon Americanization bill that has just passed the Senate, and that deserves to be passed promptly by the House.

The Kenyon bill makes available $6,500,000 for the teaching of English and the primary principles of American democracy to all illiterate residents between the ages of 16 and 31, and all alien residents between the ages of 16 and 45 who cannot speak, read and write English; and in States that qualify to benefit by this Federal fund, through the appropriation of an equal amount and in proportion to their number of illiterates, it will be necessary for the latter to attend school at least 200 hours a year.

There can be no more question about the effectiveness of such legislation in making it possible for native and alien illiterates to protect themselves against propaganda and misleading influences directed against the Government, than there is in the similar Americanizing work that has been done by and at the expense of communities and manufacturers. The great majority of aliens have been found pitifully eager to learn the language of their adopted country and the principles of democracy. The considerable minority that is indifferent, or that is innoculated with old-world radicalism will be uncovered by this campaign at least. It is a pity, however, that legislation is lacking to enforce the emigration of those who, after a reasonable period, demonstrate their unwillingness to become assimilated. That, and, the prohibition of any effort to select our immigrants are the striking deficiencies of our restrictive immigration laws.

CROSSBRED AUCTION

New Zealand Crossbreds Withdrawn at Last Sale to Be Reoffered

BOSTON, Jan. 28.—The failure of the London brokers to dispose of any sizeable quantities of New Zealand crossbreds, at recent sale, owing to maintenance of high reserve limits, coinciding with the very poor demand for such wools, led to the British agent in charge, Frank M. Windeler, cabling to his government for further instructions. The auction was a failure so far as these wools were concerned, only about 20 per cent. of the offerings being taken. Acting on recent cable instructions from London the withdrawn crossbreds will be reoffered in the Ford Hall, Feb. 5, at 2 P. M. The presumption is, of course, that these New Zealand wools, many of them South Island wools, will be procurable at lower figures; but there seems little likelihood, so it is understood, that American buyers will be able to purchase these wools any appreciable degree lower than prices being paid in London by British wool manufacturers. Catalogues issued for the previous sale will be applicable to this offering, and the samples as before will be displayed at the warehouse of J. Koshland & Co., Summer street, beginning Monday, Feb. 2.

The next regular sale of Australasian wools in this city will be held in the Ford Hall, Thursday, Feb. 19. Some very good wools will be shown, but it is understood that the quantity of super and fancy wools, so marked a feature of the last sale, will be quite limited in quantity. After the present stocks of crossbreds are sold it is expected that no further shipments will be made of these varieties to Boston, as the British authorities understand perfectly well the condition of the American market and the attitude of wool growers and merchants regarding such shipments.

ENGLISH SITUATION

Samuel M. Kaplan Says Mills Are Handicapped—Goods Scarce

Samuel M. Kaplan, who recently returned from a trip to England, describes the situation over there in the mills as in no way comparing to American mills in the way of getting up speed and production. The English mills also find it hard to obtain a production of plaidbacks, the operatives preferring to work on other fabrics that will net them more wages, and as a result plaidbacks become a thing that simply is not done. Working conditions in the mills visited were found inferior to American mills, and he felt that operatives here would be more appreciative of their own comforts if they could see the mills in England.

Mr. Kaplan is sure American woolens are higher grade than woolens made over there and would obtain a bigger price in England to-day than those of home manufacture. The rag market is absolutely bare over there, he reports, and England would be no competitor in the rag or woolen fields for the next two years at least.

Investigate Yarn Prices

Representative Tilson, of Connecticut, introduced a resolution in the House today requesting the Federal Trade Commission to make an investigation into the increased cost of combed cotton yarns including the years 1914-1919, especially with reference to the last six months. The resolution asks for the reasons of the increased cost and that a report be made to the House.

Jack Card has started to wander. He wants to meet you mill men. He may be at your plant any day. Don't think him impertinent if he appears interested in your business. He's not only after news; he also wants to build up a closer relationship between the industry and its trade publication. Possibly there is something that he can do for you. If you have a query or two, save them for his visit. He may not know the answer, but he can find out.

If you're not anxious to have your mill mentioned in this column just tell him so; he'll respect your confidence. But try not to think of him as a newspaper man; consider him a friend or at least a candidate for friendship.
—The Editors.

The Call of the Button

Did you ever notice the percentage of men you pass on the street who wear buttons in their lapels? It's far larger than you think. There's a certain lure in a button. It may mean that you're a lodge member or that you belong to a certain Sunday school society or that you stood in the chow line in the mud of France. But somebody knows what it means. And those of your friends who don't know will ask you. It's this last fact that has impelled the Barbour Flax Spinning Co. of Paterson, N. J., to issue buttons to its workers. Here's the way they reason it out. Reilly, walking down the street, meets Murphy. Murphy says: "What's the button for, Reilly?" "Oh, that's the place I work," says Reilly. "Is it a good place?" asks Murphy. And Reilly tells him about the plant and about the pay and the fact that there's a good cafeteria there and asks him why he doesn't try for a job. And maybe there's another workman for the Barbour Company. Sounds reasonable, anyway.

First Impressions

Wasn't it O. Henry who said our health may depend on the way the cop on the beat may smile or may not smile at our cook? That's just one of the little things with big results. Well, many a firm's reputation depends on the humor or lack of humor of the office boy. And likewise a mill's good name often hangs on the Man at the Gate. He's paid to swing a big club, no doubt, but there are lots of ways of swinging it. Take it from one who has stood panic-stricken before a gastronomically unfit gateman and who has at other times reacted to a cheery "Good Morning." Even if they're only salesmen and newspaper men, you don't want to make your visitors any more unhappy than necessary, do you?

Some Bakery

There's a woolen mill in Passaic which has a bakery capable of turning out 1,000 loaves of bread an hour if it ran twenty-four hours a day, which, of course, it does not. It's regarded as one of the most sanitary and efficient bakeries in the State of New Jersey. And it supplies very excellent bread to the workers in that plant and in certain other woolen mills in Passaic.

Bide Your Time

Here's a tip for long suffering dyers. Save your swatches until after lunch before bringing them up to the head of the make-up room for approval. A dyer in a nearby bleachery told Jack Card that he had adopted this policy and had cut down the number of rejections by half. If you've got an especially bad lot of matches, buy him a lunch yourself. It pays. You know the way to a man's heart.

A Converted Radical

Better one converted radical than ninety-nine satisfied conservatives. Passaic has proved it. There was an especially troublesome agitator in that city who became so obstreperous that the woolen mills were forced to act as a body in refusing him work. Which was rather serious for Mr. Red; for he had been a spinner for years. After weeks of fruitless searching for a job, he told his troubles to a man in a nearby town. The latter was sufficiently impressed to get in touch with the Industrial Council of Passaic Wool Manufacturers. He was given a hearing by an officer of that body and the latter called up the owner of one of the woolen mills and explained to him that here was a chance to convert a real live Red. The result was that the outlawed worker was given a job. And now he's one of the strongest adherents of law and order.

Latest Cable News

Manchester Eng., Jan. 29 (Special to Textile World).—Rather improved demand; prices very firmly held. Increased cloth sales for China; India buyers not active. Printed goods in healthy request, especially for South America. American yarns continue quieter; higher prices for Egyptian counts.

Bradford, Eng., Jan. 29 (Special Cable to Textile World).—London sales closed; merinos, medium and coarse crossbreds five per cent. dearer; fine crossbreds unchanged compared with December closing rates. Bradford market quiet; users well covered for tops. Deliveries coming in satisfactory on old contracts. First report of profiteering. Committee dealing with wool says Government has made colossal profits; high prices attributed to inadequate machinery capacity and concentration of demand on finer qualities. Committee also reports that if public had spread demand more equally over various qualities price of finer qualities would have been less.

H. C. L. CONFERENCE

Representatives of Textile Associations to Meet in Washington

WASHINGTON, D. C., Jan. 30.—Howard Figg, special assistant to the Attorney General, has announced that the conference will be held here on February 2, at which representatives of the biggest wool and cotton growers in the United States as well as retailers will be present.

The National Wool Growers Association, the Southern Cotton Growers Association, the National Association of Wool Manufacturers, the American Association of Wool and Worsted Manufacturers, as well as retailers' associations, have been invited to participate in the conference.

The purpose of the conference is to consider questions of production and manufacturing costs, etc., in connection with men's wearing apparel.

February Wool Sales

BOSTON, Jan. 28.—The next offering of Government wools will be held in Ford Hall, Tuesday, February 10, and run for four consecutive days. Some 24,000,000 pounds will be offered, which is apparently from 25 to 30 per cent. of total Government holdings. The first day's sale, at which 7,700,000 pounds of Australasian crossbreds will be offered, will be of special interest by reason of the fact that five days previous to the sale the London brokers will re-offer, presumably on lower reserve limits, some 8,000 bales of New Zealand crossbreds withdrawn at the sale on January 21. The following are the offerings: Tuesday, Feb. 10.—2,750,000 pounds greasy Australian crossbreds; 450,000 pounds greasy scoured Australian crossbreds; 300,000 pounds greasy Australian merino lambs; 4,000,000 pounds greasy New Zealand crossbreds; 260,000 pounds tops. Wednesday, Feb. 11.—615,000 pounds Cape; 5,450,000 pounds South American combings; 3,725,000 pounds South American carding; 390,000 pounds West Coast. Thursday, Feb. 12.—25,000 pounds domestic fleeces; 500,000 pounds territory; 450,000 pounds black fleece and territory; 1,150,000 pounds California; 1,600,000 pounds foreign and domestic pulled. Friday, Feb. 13.—2,300,000 pounds scoured.

Agree on Dye License

WASHINGTON, D. C., Jan. 29 (*Special*)—Subcommittee on Dyestuffs met this morning and has virtually agreed on substitute for licensing plan as outlined in dye licensing story in this issue. Another conference will be held to-morrow when final agreement will be reached. There will be slight change in wording at request of Tariff Commissioner, but substitute bill stands virtually as it is now. Bill will be laid before full Finance Committee in near future but there promises to be some trouble when it reaches full committee.

Sub-Committee Recommends Dye Embargo

Report Offers Substitute for Licensing System

A SUBSTITUTE for the licensing system of the Longworth Bill has been submitted to the Finance Committee of the Senate by the sub-committee which has had this matter under supervision. The new measure provides for the importation of all dyes and coal tar products except those which the United States Tariff Commission shall decide are not obtainable in the United States in sufficient quantity, or of good enough quality, or at a reasonable price.

The following is the text of the substitute:

"Section 504.—That, except as hereinafter provided, no article enumerated in group 2 or group 3 or section 500 of this act shall be admitted to entry or delivered from customs custody in the United States or in any of its possessions, unless the United States Tariff Commission shall determine that such article or a satisfactory substitute therefor is not obtainable in the United States or in any of its possessions on reasonable terms as to quality, price and delivery.

"Section 505.—That under this act an article shall be deemed to be of reasonable quality if, in the judgment of the United States Tariff Commission, it is capable of giving results as good as that of a competing article of foreign origin.

"Section 506.—That under this act reasonable terms as to the price for an article shall mean the lowest price or prices for the time being which, in the judgment of the United States Tariff Commission, shall be sufficient to insure the maintenance of the United States or any of its possessions of the production of such article by an efficient plant operated on a substantial commercial scale.

"Section 507.—That under this act reasonable terms as to delivery shall mean delivery within six weeks of an amount of such article or articles, which in the judgment of the United States Tariff Commission, shall be sufficient to supply the needs in the particular case for a period of six months.

"Section 508.—The United States Tariff Commission, in executing the duties imposed upon it by this act, may regulate its own provisions and transfer and make all rules and regulations necessary and proper for the accomplishment of the purposes of this act.

"Section 509.—That the United States Tariff Commission shall have exclusive jurisdiction of the distribution among consumers in the United States and any of its possessions of any of the articles enumerated in group 2 or group 3 of section 500 of this act which may become available to such consumers in annex 6 of section 1 of part 7 of the Treaty of Peace with Germany submitted by the President on July 10, 1919, to the United States Senate.

"Section 510.—That notwithstanding the prior termination of the present war, the provisions in the 'Trading With the Enemy Act' approved Oct. 6, 1917, and of any proclamation by the President issued in pursuance thereof whch prohibits or control the importation in the United States of dyes or other products derived directly or indirectly from coal tar, are continued for a period of 90 days beginning with the date of the taking effect of this act. All individual licenses issued by the War Trade Board section of the Department of State prior to the expiration of such 90 days, shall remain in effect and the importation under such licenses shall be permitted.

"Section 511.—Ninety days after this act shall go into effect the Secretary of State shall forthwith cause to be transferred to the United States Tariff Commission all papers, questionnaires, documents, books and other records of the War Trade Board Section of the Department of State relating to the issuance of individual import licenses on articles enumerated in group 2 or group 3 of section 500 of this act.

"Section 512.—That for the purpose of enforcing the provisions of this act, the United States Tariff Commission shall have the power to require by order from time to time, from any persons engaged in the manufacture within the United States or any of its possessions of any articles enumerated in group 2 or group 3 of section 500 of this act and who ship any such articles in interstate commerce, sworn statements of their actual production, stocks on hand, contracts, or expected orders for future delivery and cost of production of such articles, and price at which each article is offered for sale, together with a sample thereof, if desired, and any other information which the United States Tariff Commission may require.

"The commission shall also have power through its duly authorized agents to inspect all factories and warehouses and books and records of persons engaged in the manufacture within the United States or any of its possessions of any of the articles enumerated in group 2 or group 3 of section 500 of this act. The powers granted the United States Tariff Commission under section 706 shall furthermore be available for carrying into effect the provisions of this act. Note: The information of this section shall not be a matter of public record, but shall be for the confidential use of the commission only and shall not be published or revealed except in the form of tables, averages or summaries which shall not disclose the operations of individual manufacturers.

"Section 513.—That any person who refuses or fails to comply with any order of the United States Tariff Commission issued by authority granted in this act and who, while so refusing or failing to comply, shall ship in interstate commerce any of the articles enumerated in group 2 or group 3 of section 500 of this act, shall be guilty of misdemeanor and shall be punished by a fine not exceeding $..... per day until such order of the commission shall be complied with.

"Section 514.—That any person subject to the jurisdiction of the United States who shall as principal or as accessory enter or attempt to enter or aid in entering any article enumerated in group 2 or group 3 of section 500 of this act otherwise than as herein provided or otherwise than in compliance with the rules and regulations prescribed under the authority of this act, shall be fined not exceeding $..... or the appraised value of such product at time of importation, whichever shall be greater, or shall be imprisoned for not exceeding ..... years, and the commission may refuse to permit any such person to make further entry of any of the articles enumerated in group 2 or group 3 of section 500 of this act.

"Section 515.—That the word 'person' as used in this act shall mean individual, corporation and association.

"Section 516.—That any article which shall be entered or delivered in violation of this act shall be forfeited to the United States and shall be sold at public auction for exportation only.

"Section 517.—That to meet all expenses of the United States Tariff Commission in performing the duties imposed by this act, such as rental of suitable quarters, the purchase of supplies and equipment, books of reference, law books, printing and binding, and the payment of personal and other services in the District of Columbia and elsewhere, and traveling and subsistence expense in the United States, together with all necessary traveling expenses and expenses for subsistence outside of the United States, which shall not be restricted by the limitations of existing law, the sum of $250,000 or as much thereof as may be necessary, we hereby appropriate for the fiscal year ending June 30, 1910.

"Section 518.—Unless otherwise provided, this act shall take effect on the day following its passage."

TESTIMONY AT HEARING

This report of the sub-committee was made after a series of hearings last month during which many prominent men testified as to the need of a protective measure. The American Dyes Institute has prepared a pamphlet giving a condensation of this testimony. Excerpts from this booklet follow:

INTRODUCTORY STATEMENT

Joseph H. Choate, Jr., of New York, of counsel for the American Dyes Institute, in an introductory statement, outlining the legislation and explaining its necessity, said in part:

"Our proposition is that the dye industry is of such supreme importance as to be absolutely—and I do not mean relatively; I mean absolutely—necessary to the continued prosperity and safety of the country; that on it depends the national defense, the security of the country; that on it depends the progress of scientific, particularly medicinal, chemistry, the progress of industrial chemistry, and through industrial chemistry the progress of industry generally; that on this industry are economically dependent other industries which produce three billions of dollars of goods each year, with three billions of dollars more dependent upon this industry; that the German competition to which our new industry will be exposed after traffic is reopened will be so unscrupulous, so reckless, so powerful that special protection is required for our new industry to survive; that our new industry has been developed by great and patriotic sacrifice to a point it deserves to survive; and that it cannot survive unless some protection more than the anti-dumping legislation or any conceivable corrupt-practice legislation is afforded.

"The bill itself comprises two features: in the first place, an ordinary tariff bill, providing for a free listing consisting of those crude products which are produced as readily in this country as anywhere else and as cheaply; secondly, intermediates, on which very complicated manufacturing processes have been applied, and which are subjected to a duty lower than that on the finished products, a specific and an ad valorem; and, finally, on completed manufactured products, upon which a higher duty is imposed."

CONDITIONS IN GERMANY

Dr. Charles H. Herty, editor of the *Journal of Industrial and Engineering Chemistry,* who is one of the best known chemists in the United States, then described how he had gone abroad early in the fall for the War Trade Board for the purpose of ascertaining what vat dyes could be released for consumption by American textile manufacturers and other consumers who needed them. Dr. Herty explained the complications which had grown up abroad respecting the exportation of dyes to the United States.

He stated that there were being held in the occupied territory pending the treaty proclamation 40,000 tons of dyes and produced a list of the dyes included in that tonnage.

Dr. Herty explained the complications which existed in Paris concerning the dye situation and asserted that he was struck with the fact that in the list of German dyes for optional taking by the Allies, there were very few intermediates. He looked upon that as being rather ominous, and he said there was no record anywhere as to the amount of intermediates in Germany at the time he was there. He told of consignments of dyes from Germany to China and South America, and of the desire of Germany once more to command the world trade. This was evidenced by some quotations from publications which were put in the record, including the statement showing the increase of capital by the German dye manufacturers. He told of certain conversations which he had had with persons of note, referring to the necessity for the dye industry to maintain the future peace of the world, and claimed that the power of Germany, while estopped in many directions, had not been controlled in the manufacture of poison gases. He claimed that it was necessary for the future peace of the world that this country should be "not simply as strong as but stronger than Germany in its dye industry and in its general chemical industry."

Dr. Herty asserted that those who were reported to have been opposed to the license bill in Great Britain were men who dealt in imported dyes and were not manufacturers.

Former Major Theodore W. Sill, of the Army Ordnance, now of E. C. Klipstein Company, who had been a member of the Inter-Allied Commission visiting Germany in the occupied territory after the armistice, told of the condition of the German dye plants as he found them and asserted that they were in excellent shape.

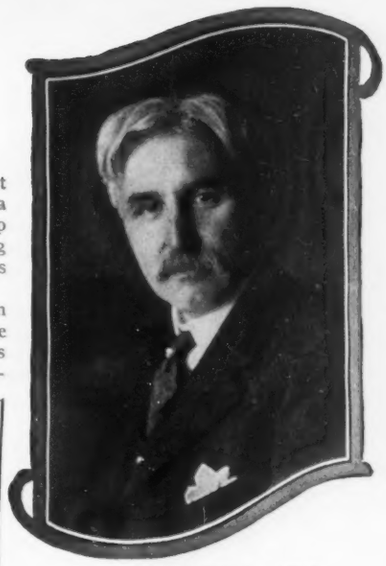
Major Sill stated that in the latter part of February and the early part of March (1919) he visited five dye plants, namely Bayer, Badische, Meister, Lucius and Brunning, Cassella, Weiler-ter-Meer, and that at that time those plants were in perfect condition, no harm having been done them by air raids. He added:

(*Continued on page* 49)

Man-to-Man Talks

No. 2—A Talk With the Foreman

By *Dr. Charles A. Eaton*



DR. CHARLES A. EATON

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FRIEND FOREMAN: It would ill become me to offer you any suggestions as to the technique of your work. The fact that you have achieved the position of foreman is evidence that you are master of your craft. You know your business better than do those you lead or you could not lead them.

But you are much more than a mechanic; much more even than a Foreman of mechanics.

You are a leader of men; a living link between labor and capital, employed and employer. You have a man-size job and you must be bigger than your job in order to be as big as your job.

The whole future of your country and in a real sense, the whole future of civilization depends in no small measure upon you. Almost more than any other citizen just now, you hold in your hands power for good or ill to your own country, and to the world.

This may seem to you like an overstatement of the case and one which places upon your shoulders responsibilities beyond what you ought or wish to bear. Far be it from me to add a single unnecessary straw's weight to the load you must carry every day, but I believe I can be of real service if I can show you just how big and worth-while your job really it; apart altogether from its technical side of which you know so much and I so little.

The value of any work is measured by its service to the community. The greatness of a man is determined by what he does for other men. If the community did not need and want and was not willing and able to pay for the product of your factory, you and the big boss, and all the workmen under your care would soon be out of a job.

In addition to making a good article for sale you are therefore equally interested in making a community that can buy and use and pay for the things you make. Such a community must be ruled by law and order and its citizens must have intelligence, honesty and thrift.

Your factory is a part of the general community. And while you are making things to sell you must be at the same time making men to buy them. If you are working for a big corporation all that the employes know about the corporation comes to them through their contact with their Foreman. He is the Corporation so far as they are concerned. If the Foreman is a wise, patient and friendly man the chances are that every man under him will become, or at least will try to become, a good workman and a good citzen. If the Foreman is of the old school and thinks that he is hired to be a slave driver he will always be cursed by poor, grudging service on the part of his employes and they will furnish rich soil for the agitator and revolutionist when they are off duty.

The great war was fought between two ideals of life. On one side was Autocracy which tried by brute force to clamp down upon an unwilling world the authority of self-appointed dictators. On the other side was Democracy, which means simply the will to be free. The fundamental idea of Democracy is that men have a natural right to choose their own rulers and to create their own governments.

Democracy won. And by its victory, bought with the blood of millions, it became the foundation principle upon which the world will build all of its institutions, economic as well as political for generations to come.

It is a fact that Democracy is the hardest form of government known to history. And for this reason: Democracy is self-government; and self-government is always difficult. Democracy means government *of all* the people, *for all* the people; *by all* the people. If *all* the people are to have a say in the governing of themselves, and of each other it follows that they will succeed just in so far as they have character and intelligence. A fool cannot govern himself let alone his neighbor. A bad man is bad because he has lost or has never acquired the power of self-government. Goodness is self-discipline. Wisdom is self-discipline directed toward some good purpose.

Democracy is here and here to stay. We must order our lives by its principles and accept the duties as well as the rights which it brings to us. It will not work itself any more than a law upon the statute books can enforce itself. Democracy can only succeed when a majority of the people are of good character and of sufficient intelligence to reason upon and decide vital questions for themselves.

Editorial Note: This is the second of a series of five industrial articles by Dr. Eaton. The first, published in Textile World January 24, was A Talk with the Boss. The remaining three articles to follow in successive issues are:

No. 3. A Talk with the Wage Earners.
No. 4. A Talk with the Labor Leader.
No. 5. A Talk with the Public.

As previously explained, Dr. Eaton, upon the completion of his duties with the U. S. Shipping Board as director of the campaign to stir up enthusiasm and patriotism among the workers in the shipyards, resigned from the pulpit to devote himself to industrial betterment work. He was also engaged to write a series of industrial articles, which we have secured for publication.

DEMOCRACY'S TASK

The one big task for a Democracy then is the making of character and the training of intelligence among its people.

In this big task we think of the home, the school, the Church, and the Press as playing a leading part. But nowadays when an ordinary boy reaches the age of sixteen or eighteen, he usually goes to work in some factory. That changes his whole life. After he gets a job in your factory he is home very little except to eat and sleep; and the influence of the home upon him becomes less with the passing years. Having left school he can learn nothing more there. He reads but little in the daily papers beyond the baseball score; and a few exciting sensations. At his age it is not supposed to be good form to go to church very often, so he loses out of his life that most valuable training in character.

We must bear in mind always that this young man, like millions of others, unformed and unexperienced, is about to become, or has already become a voter. Which means that he will help to decide public questions involving your prosperity and mine as well as the safety of the country itself.

Now let us ask ourselves a question or two. What is there to take the place of the home, school, church and press as an educative and restraining influence in the lives of these millions of men employed in industry? I answer, industry itself must take the place of these helpful influences of home, school, church and press. No man can possibly acquire enough intelligence and character during his first eighteen years to carry him safely and successfully through his life. He must keep up his education and self-discipline as long as he lives or he will surely end in failure.

From the day he leaves school and home the bulk of his waking time is spent at work. And it is while he is at his work that he must be trained in the art of being a real man, and intelligent and patriotic citizen.

Who is to train him? I hate to say it because it puts a tremendous burden of responsibility upon men already burdened with vexing cares and duties. But there seems to be no escape.

KEY-MAN IN INDUSTRY

The Foreman will have to act towards the men under him so as to supply those influences usually exerted by home, school and church.

This is why I believe that the Foreman's job is one of the biggest and best and hardest and most worth-while of any job in the world today. The Foreman is the *key-man* in industry and he cannot possibly overestimate the importance or responsibility of the place he has to fill.

This conception of the Foreman's place and work is not a mere theory. It is intensely practical, as a moment's reflection will show.

You have to get results. That is first of all what you draw your salary for. In the getting of results you depend upon management, material, machinery and men. Outside of your own department, management is up to the big boss. And you are not primarily responsible for the quality of material and machinery given you. But the man who runs the machine under your direction is the determining factor in production. It is the human element that counts here as everywhere.

The workman will produce in direct proportion to his intelligence, character, ambition and good-will. Common sense demands that he be surrounded by decent conditions of labor and that full attention be given his health and safety. It is taken for granted also that he will be given a chance to earn, up to his best capacity. But after all this is attended to, his efficiency in production will fall far below normal unless he is interested in his work and comes to it with good-will and enthusiasm.

Good-will is the first factor in production and the Foreman is the fountain of good-will. He is to his men what the will is to the mind or what the mind is to the body. He is the soul of the gang. He is a leader and the function of the leader is to lead.

Now this does not mean that the Foreman is to conduct a Sunday School class or even give lessons in tatting. You must have discipline. But good discipline is not for that reason unpopular. The hardest fisted officers in the army are often the most popular among the men. Many a school boy would rather be licked by one master than loved by another.

The very fact that you are the boss gives you a peculiar place in the minds of your men. You cannot get the best out of them unless you have their respect and good-will. And respect and good-will grow out of confidence in your fairness. Fairness and firmness are only another name for justice. You have power and authority. The possession of these implies that you use them always with a full sense of responsibility and never for personal ends. A square deal to every man and by every man because you are a square man yourself, is the basis of peaceful relations with your men.

If your workmen look upon you as their natural enemy hired to drive them in order to make big profits for a soulless corporation, they will produce as little as they can and get away with it, and they will break loose, and forget things enough to break the firm. You will find yourself baffled at every point. The Company calls for results. Your men conspire to make results impossible and you are ground between the upper and nether millstone.

And, worse still, these men, soured, suspicious, and skilled in slacking on their jobs, will go out as citizens and become an easy mark for the agitator. He will tell them that they are slaves, that you and the big boss are tyrants,

(*Continued on page* 95)

AN INTERESTING CAREER

Franklin Process Company's Engineer Was German Prisoner for Four Years

Few textile men have enjoyed such intensive training for their life work, or suffered such depressing war experiences, as has Louis Arthur Mast, who has just become associated with the Franklin Process Co., Providence, R. I., as an expert in dyeing, finishing and their engineering problems. Mr. Mast has been in this country for several months, having come here as soon as he received his honorable discharge from the Belgian Army to visit his friends, Fuller E. Callaway and S. Y. Austin, of LaGrange, Ga., whom he had met in Ghent before the war, and for whom he has just completed the installation of a modern dye house equipment for their Hillside Cotton Mills. Mr. Mast sails for England this week to supervise the equipment of the new plant in Manchester, Eng., of the

LOUIS A. MAST

Franklin Process Co., and will later divide his activities between the Franklin Company's plants abroad and in this country.

Mr. Mast delights in telling of his textile experiences in Europe and this country, but is very reticent regarding his war experiences, referring to them as a nightmare. He was among the first of the loyal Belgians to enlist in the struggle to repel the German invasion of their country, and was taken prisoner after the battle of Ypres. The Germans were well aware of his qualifications as a textile manufacturer and engineer, and offered him high wages and all sorts of inducements if he would work as an engineer in their war factories, but he refused their offers and because of his refusal was made to suffer more than the ordinary horrors of German prison camps until released by the termination of the war. Although nearly five of the best years of his life have been thus dissipated, Mr. Mast has demonstrated by his work at LaGrange, Ga., that he has lost none of his ability, and that his character has not been soured by his war experiences is proved by the following encomium in the LaGrange mill paper, "The Shuttle": "Louis has been a continual source of joy and pleasure since he came from Belgium a few months ago with our Mr. Fuller E. Callaway. His buoyant nature and genial and lovable disposition made him a great favorite with those who knew him, and it is with sincere regret that we bid him good bye, though we rejoice in his good fortune and shall hope to hear of his unbounded success."

Mr. Mast is a graduate of the Industrial University of Ghent, Belgium, and after receiving his degree was honored by being awarded a scholarship allowing him a year's travel for study at the Government's expense, which time he spent in Germany, France and England in the study of textile dyeing and finishing. His first practical work was the organizing and equipping of a mill for the weaving and finishing of silks and cottons, known as Tissages et Apprêts de Soieries. During his association with this mill he became acquainted with Eugene De Keukelaere, the well known Belgian manufacturer of finishing and package-dyeing machinery, and was later engaged by this firm as an engineer, remaining with them until the outbreak of the war, his work taking him among textile mills in practically all of the countries of Europe, as well as in South America. His travels gave him an unusually extensive knowledge of textile conditions and practice, and also made him an accomplished linguist. His association with the Franklin Process Co. is a natural result of the increasingly international character of their business and their policy of building up a staff of high technical ability and character.

BUY COTTON NET WEIGHT

Domestic and Foreign Spinners Start This Next Season

A definite movement to enforce the sale of domestic cotton on a net weight basis has been inaugurated by the National Council of American Cotton Manufacturers, and a letter has been addressed by them to their constituent organizations in this country and to the International Federation of Master Cotton Spinners' and Manufacturers' Associations, which includes in its membership most of the important foreign organizations of spinners. The National Council's recommendation is that at least one-third of the American cotton to be purchased from the crop of 1920-21 be bought on a net weight basis, and that the system be adopted universally the following season. This proposition will be considered at the next meetings of the boards of directors of the National Association of Cotton Manufacturers, the American Cotton Manufacturers' Association and the Arkwright Club, and it is expected that the International Federation will recommend prompt action on the same subject by affiliated bodies of spinners and manufacturers.

INITIATION OF MOVEMENT

In its letter to constituent bodies and to the International Federation the beginnings and progress of the movement are outlined as follows by the National Council:

"The question of buying cotton net weight has long had careful consideration from thoughtful leaders of the textile industry. Looking to this end, the International Conference of Cotton Growers, Spinners and Manufacturers, held in Atlanta, Ga., in October, 1907, adopted unanimously the following resolution:

"'*Buying at Net Weight:* In order to secure an equitable tare on cotton, we encourage buying by net weight, and recommend that the National Executive Committee of the Farmers' Educational and Cooperative Union, the Southern Cotton Association, and other farmers' organizations incorporate a system which will place on each bale of cotton the weight of the bagging and ties.'

"The National Association of Cotton Manufacturers, at their annual meeting held in Boston in April, 1910, adopted this resolution:

"'*Resolved,* That this Association favors the buying of cotton on a net weight basis, believing that if this system is gradually adopted, the ultimate effect will be to improve the American bale by removing the inducement to use an unnecessarily heavy covering.'

"The Arkwright Club, at a meeting held in May, 1910, took this action:

"'The subject of the movement to introduce the purchase of cotton at net weight was discussed and it was voted that the Arkwright Club is heartily in favor of the movement to substitute the system of buying cotton at net weight for the present system, and expresses the hope that the International Federation of Master Cotton Spinners' Associations will devise a practicable method of introducing such a system.'

RECOMMENDATIONS OF NATIONAL COUNCIL

"Finally, at a meeting of the National Council of American Cotton Manufacturers held in Washington on Dec. 11, 1919, the following resolution was unanimously adopted:

"'The National Council suggests to the Arkwright Club, the National Association of Cotton Manufacturers, American Cotton Manufacturers' Association and the International Federation of Master Cotton Spinners and Manufacturers' Associations that they should recommend to their members that they buy at least one-third of their cotton on a net weight basis, beginning with the crop of 1920. It is hoped that in the following year, this system can be adopted universally.'

"There is common agreement as to the necessity and desirability for the contemplated change. The advantages of buying cotton on a net weight system are varied and manifest and in the opinion of those who have studied the question, it would afford the most effective step that could be taken toward bringing about an improved American bale. The proposed change, moreover, should involve no increase in the cost of cotton, as the difference added would simply equalize the cost of the tare or the loss to the grower by charging net weight instead of gross.

"Will you kindly bring this letter to the attention of your directors at their next meeting and ascertain if the recommendations of the National Council cannot be put into practical effect, beginning with the crop of 1920?"

TO SELL COTTON ABROAD

Opportunity to Dispose of 300,000 Bales Announced in Georgia

ATLANTA, GA., Jan. 28.—An opportunity for southern farmers to sell 300,000 bales of low grade cotton to foreign consumers at prices ranging from thirty-five to forty-one cents per pound was announced yesterday by J. J. Brown, Commissioner of Agriculture for Georgia, following a letter received from J. S. Wannamaker, president of the American Cotton Association. It is also announced that negotiations have been in progress for some time with American banking officials and representatives of foreign mills and banking interests, the purpose being to find an outlet for a large proportion of the low grade cotton that is now being held in this country. Mr. Wannamaker states that he believes there exists a market for as many as 2,000,000 bales of the lower grade in Europe; a definite market has already been found for the 300,000 bales he referred to in his letter.

The following returns are expected: Forty-one cents low middling; thirty-nine cents strict good ordinary; thirty-seven cents strict ordinary; thirty-five cents ordinary. This price is figured after all expenses have been paid to the ports and should be f. o. b. shipping point. The terms of the sale provide for eighty per cent of the purchase price being paid in cash, the remaining twenty per cent being deferred, secured by a syndicate of foreign banks and guaranteed by their governments. Six per cent interest is to be paid on this deferred balance. A movement is now on foot to have this paper discounted by certain banks in this country.

Those who wish to sell their low grade cotton on this basis must give a twenty day option on it. All owners interested have been requested by the president of the association to communicate at once with the Georgia division of the association.

Indicating that there is also a demand abroad for high grade cotton, Mr. Wannamaker points out the advisability of clearing the market of the low grade staple and thus stimulating the situation in this country. Urging immediate action he states:

"We have carefully arranged all details. The exporting company stands ready to move the cotton; the foreign buyers stand ready to buy it; all that is now necessary is to secure a twenty day option on the cotton as outlined. It is absolutely necessary to have the twenty day option as cables will have to be sent to foreign representatives and the details put into effect and force. As soon as this sale is made the cotton will be received and graded and settled for as above outlined as fast as it is humanly possible."

WOOL CONSUMPTION

High Percentage of Fine Grades Used in December

A total of 64,000,000 pounds of wool, grease equivalent, was used by manufacturers in December, 1919, or 26,000,000 pounds more than in December, 1918, according to the Bureau of Markets' monthly report just issued by the Department of Agriculture.

The continued demand for fabrics made from the finer grades of wool is reflected by the percentages given in the report. Of the total wool consumed in December, 34 per cent. was fine; 18 per cent. ½ blood; 17 per cent., ⅜ blood; 16 per cent., ¼ blood; 3 per cent. low; and 11 per cent. carpet wool.

Massachusetts continued to hold the lead in the amount consumed with 23,420,247 pounds of all grades, classes and conditions, followed by Pennsylvania with 8,804,337 pounds; Rhode Island, 6,548,116; New Jersey, 5,012,965; and New York, 4,082,080. Connecticut, New Hamshire, Ohio, and Maine used between one and two million pounds, while in the Pacific Coast States 363,078 pounds were used.

The total amounts consumed according to condition were grease, 46,165,984 pounds; scoured, 7,681,642 pounds; and pulled, 1,718,627 pounds.

MONTREAL, QUE. The Jenckes Spinning Co., Pawtucket, R. I., plans to locate near Montreal and to erect manufacturing building costing $200,000. The Canadian company is now in process of organization.

FOR OPEN SHOP

New Bedford Manufacturers Ask for Continuance of Operatives' Agreement

NEW BEDFORD, Mass., Jan. 27.—The New Bedford Cotton Manufacturers' Association threw down the gauntlet to the Textile Council at a conference here yesterday to discuss the situation at the Nashawena mill, where a strike of 104 loom fixers has affected the weaving department to such an extent that 600 of the weavers walked out Monday.

The weavers made it clear that their attitude was not one of sympathy with the strikers, but was merely owing to the fact that a shortage of fixers has resulted in failure to keep the machines in full operation, with the consequent loss of wages which are said to amount to between $10 and $12 weekly.

The loom fixers struck work on January 9 following their failure to secure the few operatives who were not unionized to become affiliated with the union. A few weeks ago there was a similar disturbance at the Beacon mill, the trouble arising from members of the same craft. The manufacturers are of the opinion that the loom fixers' union is agitating for the closed shop, and puts the issue clearly up to the Textile Council, reminding the latter body of the signed agreement reached last June following the strike of the engineers and firemen, which declared that the labor heads agreed to the maintenance of an open shop in the mills.

BOTANY SUIT CALLED

Issue Raised Over the Stoehr Holdings Now on Trial

Seizure of the German holdings in the Botany Worsted Mills, Passaic, N. J., and the reorganization of the board of directors by the Alien Property Custodian in 1918 were reviewed in the trial of the suit in the U. S. District Court instituted by Max Stoehr to recover 20,590 shares of the mill stock alleged to have been the property of Stoehr & Sons, Inc., at early sessions of the trial, which was begun Monday. Mr. Stoehr was the first important witness examined, who asserts the corporation of which he is an officer holds a valid title to the stocks formerly held by his brothers, George and Edward Stoehr, who are residents of Germany. The defense contends that the transfer was invalid and without ratification by the owners. Much documentary evidence was introduced bearing on these points, and the court held in abeyance a motion to send to Germany for depositions, stating at the same time such delay would probably be unnecessary. Max Stoehr owns forty-four shares of the stock, the testimony disclosed.

Balance sheets showing the 1917 assets of the Botany Company were offered in evidence, indicating that such assets exceeded $28,000,000, with a reserve in excess of $11,000,000. Owing to delay in tax items, the 1918 balance sheets are not completed, it was stated. Attorney General A. Mitchell Palmer is expected to appear in rebuttal of charges that he exceeded his official warrant as Custodian in the conduct of affairs of the company.

SUPPORT FAIR PRICES

Conference with Woolen Manufacturers' Representatives

Chairman Arthur Williams of the Fair Price Committee, met officers and directors of the American Woolen and Worsted Association, in a conference especially arranged by the chairman Wednesday to discuss conditions and reports of hoarding of cloth by jobbers. The conferees expressed themselves as being in hearty accord with the program to reduce the cost of clothing. The opinion prevailed that improved production would disappoint speculators inclined to hold back their stocks of piece goods.

In a statement made subsequent to the meeting Mr. Williams said:

"Cloth is now being delivered which was purchased contracts made when the prevailing prices were much lower. They should be disposed of at a fair profit and not necessarily at the higher market level of to-day. Following any other course would subject the jobbers to the charge of 'profiteering.'

"The general tendency towards buying more expensive articles of clothing indicated a few days ago by President Wood of the American Woolen Association, were fully endorsed by the gentlemen present. They were of the opinion that an important result would be secured towards lowering the cost of living if the people generally would confine their purchases to standard styles of plain and serviceable materials. Further consideration is to be given plans for the most effective co-operation between the association and the administration."

Committee Appointed

The American Association of Woolen and Worsted Manufacturers will be represented at the conference at Washington with Howard E. Figg, assistant United States Attorney General having in charge the enforcement of the Lever Law in the cloth and clothing industry, by A. L. Gifford, Frederick K. Nixon and J. J. Nevins, secretary of the association.

MERINOS REACT SLIGHTLY

Crossbreds Unchanged or Easier at London Sales—Home Buyers Most Active

(*From our Regular Correspondent*)

LONDON, Eng., Jan. 12.—The first series of Government wool auctions of the year opened at Coleman Street today. Exceptional interest attached to the proceedings, in view of the heavy decline at the December series and the desire for some clear indication as to the position of values.

There was a very large attendance, and buyers showed themselves very keen operators. During the series there are to be offered only 100,000 bales on inspection (which is less than previous sales), while 42,000 bales are to be sold on description. The offerings on the opening day consisted of some 10,600 bales. Merinos were in excellent selection, and some fine 64s-70s combings were offered. On the other hand, the selection of crossbreds was somewhat miscellaneous.

Competition was again chiefly on home trade account. There was a slight reaction in merinos, and the prices obtained ruled about par to five per cent. dearer than the closing rates of the December Sales. Fine greasy crossbreds sold readily at last sales rates, and could be described as firm on this basis. On the other hand, medium and coarse crossbreds were easier in most cases, though the sales could not be described as weak except for coarse crossbreds, particularly 36s quality and below, in which withdrawals were frequent.

The merino offerings, which consisted chiefly of Victorian greasy wools, ranged in price from 51d to 83d, and pieces made up to 56½d, broken up to 52d, and necks up to 59½d per lb. Representative prices are as follows: C. W. C. 7 in Triangle (235 bales):—Scoured comeback, 83d, 82½d, 60d, 52d. N. A. G. & Co., Jemalong—Scoured comeback, 66½, 63d. S. Wilson, Yonco, greasy merino broken, 54½d, necks 57½d, 53d, 52½d, 52d. Various marks—greasy merino combing, 83d down to 51d.

Greasy crossbreds made prices ranging from 46½d down to 18½d per lb. C. W. C. 7 in Triangle, scoured crossbreds, made 62½d, 62d, 53½d, 52d, 51d. N. A. G. & Co., Jemalong, crossbred, 53d. New Zealand, C. M. C. O., N. Z. R. Co., slipe crossbred, 37d to 30½d; lambs, 42d to 24d; washed crossbred pieces, 27d, 20½d. S. C. D. O. and S., W. T. N., scoured crossbred, 57½d to 32½d; pieces, 38d to 28d; ballies, 38½d, 30d. Other marks, greasy crossbred, ranged from 46½d to 18½d.

Apart from home competition, the buying of neutrals was restricted, and evidently the position of the exchange is still causing French and Belgian users to adopt a hand-to-mouth policy. The result of the sales was received with general satisfaction, however, as the values realized have established a basis for merinos, without forcing raw material back on to the extreme level of the beginning of December.

At the conclusion of the first day's sale there was a sale of free wool. Russian wool to the extent of 715 bales was offered, and prices ruled on a par with average 60s.

South African wools were not tested on the opening day.

NEW EGYPTIAN RECORD

Unprecedented Prices and Imports of Egyptian Cotton

BOSTON, Jan. 28.—Another new record was established in the Egyptian cotton market yesterday when the March option at Alexandria touched $1.36½; this compares with a previous high for the January option of $1.35 on January 14. Since the latter price was touched the active option has switched from January to March, prices declining in the meantime to as low as $1.17 and then recovering. While these prices seem to disclose a highly speculative situation, none of the local importers have received advices that show clearly what are the responsible factors.

The fact that the local spot market for Egyptians has not advanced in proportion to the rise in Alexandria futures cannot be accepted as indicating the possible future course in values, because spot offerings have been swelled by large receipts of actual cotton and by re-sales of spots and contracts owned by southern shippers of domestic staples who used Egyptians for hedging purposes back in October. Over 2,000 bales of the latter's cotton, largely good grades of Sakellarides and Uppers, have been offered this week, and at prices as much as 10 or 12 c. below asking prices of regular dealers for similar grades. Sakellarides of "fully good fair" grade is now held as high as $1.08, but is offered by some of these southern shippers at 95 to 98c.; the same cotton was available a few weeks ago around 90c.

Imports of Egyptian cotton at this port for the month of January are likely to aggregate close to 50,000 bales if the steamers Lexington and Tartar Prince, which are now due, arrive within the next few days. Two steamers arrived this week direct from Alexandria—the Glendevon, with 13,164 bales, and the Santeramo, with 9,000 bales. Capacity of the two local fumigating plants are being extended to the utmost, but thus far there appears to have been no congestion of cotton.

STILLWATER CASE

Owners Enjoined from Selling Mills to Other Than Company Suing

In the case pending in Rhode Island courts, the William Tinkham Company and others who control certain mill property in the village of Harrisville were enjoined January 14 by the Superior Court from conveying or transferring this property to any party other than the Stillwater Worsted Company. This action was taken on the bill of complaint brought by the Stillwater Worsted Co. In a lease, it is claimed, is an agreement to sell the property of the complainant, and the purpose of the suit is to compel the sale under this alleged agreement. The matter was heard before Presiding Justice Tanner, on the worsted company's prayer for a preliminary injunction, and granted. The injunction, says a press report of the proceedings, not only restrains the William Tinkham Company from conveying the property, but also restrains it from taking proceedings to eject the Stillwater company from possession under the lease.

A statement by Ernest W. Tinkham, treasurer of the William Tinkham Co., under date of January 24, says: "The William Tinkham Co. still own the mills at Harrisville, R. I., which are now operated by the Stillwater Worsted Mills. The Stillwater Worsted Mills tried to force the sale on an option given the Stillwater Worsted Co. in 1918, Nov. 8, which option proved not to be good, so said the court at the first hearing. As things stand now, the Stillwater Worsted Mills are tenants from month to month, without a lease of the property."

Silk Men to Visit Japan

A delegation representing the Silk Association of America will leave San Francisco on the steamship Nanking Feb. 21 for Japan and China. The party will be guests of the silk industry in Japan and China and is making a return visit for that of the Japanese raw silk reelers last year. The party, headed by Charles Cheney, president of the association, includes William C. Cheney, E. J. Stehli, John D. Dunlop, George A. Post, D. E. Douty and Ramsay Peugnet.

Rates Found Unreasonable

WASHINGTON, D. C., Jan. 30.—The Interstate Commerce Commission has handed down a decision in case 10470 of the Cannon Manufacturing Company of Concord, N. C., against the Southern Railway Company et al. In their syllabus in this case the Commissioners say: "Rail-Water-and-Rail rates on tobacco shade cloth in any quantity from Concord, N. C., to points in Connecticut and Massachusetts found to have been unreasonable. Reparation awarded."

THE PERSONAL PAGE

Samuel Rindge, of Parker, Wilder & Co., dry goods commission merchants, Boston, has been elected treasurer of the Lincoln Woolen Co., Camden, Me., succeeding the late C. I. Lincoln.

Robert F. Herrick, president of the Pacific Mills, is reported to have completed his tour of South American countries and to be on his way home. Before going to South America, Mr. Herrick spent several weeks in England, France and Belgium, going thence direct to South America.

Hon. Henry P. Benson has been elected president of the Naumkeag Steam Cotton Co., Salem, Mass., succeeding Grant Walker, of Boston, who refused to accept re-election.

Robert W. Atkins, treasurer of the Aetna Mills, Watertown, Mass., and the Shirreffs Worsted Co., Fitchburg, Mass., sailed last week for Cuba, where his father and he have large sugar interests.

John L. Patterson, formerly vice-president and manager of the Rosemary Manufacturing Co., Roanoke Rapids, N. C., who recently sold out his interests in this company, has removed to Richmond, Va. He has already been elected a director of the First National Bank of that city, which does a large business with textile mills.

At the recent annual meeting of the Corr Manufacturing Co., Taunton, Mass., Chauncey H. and Roy H. Sears, both of Fall River, Mass., retired from the directorate and were succeeded by A. C. Bent and J. P. Corr, both of Taunton. P. H. Corr was re-elected president of the company.

H. L. Mooreman, Maurice Moore, E. J. Heuschuh and J. W. Ahmuty are the new members elected to the board of directors of the Lynchburg (Va.) Cotton Mill Co.

James M. Brawner, one of the pioneer cotton manufacturers of the South, has retired as president of the Kincaid Manufacturing Co., Griffith, Ga., and has been succeeded by his son-in-law, Allan Little, who has been vice-president and general manager of the mills for a number of years.

At the annual meeting of the Naumkeag Steam Cotton Co., Salem, Mass., Nathaniel G. Simonds was re-elected treasurer for his 25th term. Previous to becoming treasurer he was clerk of the corporation for twenty-six years.

Arthur H. Lowe, treasurer of the Parkhill Manufacturing Co., Fitchburg, Mass., and former mayor of that city, is to be a candidate next fall, it is understood, for the Republican nomination in the third Massachusetts congressional district. Mr. Lowe is one of the most prominent cotton manufacturers in this country and has been president of both the National Association of Cotton Manufacturers and the American Cotton Manufacturers Association.

Oliver B. Bradley has resigned as cashier of the First National Bank, Northampton, Mass., a position he has held for the last fifteen years, to become financial agent of the McCallum Hosiery Co. His resignation becomes effective on May 1.

Charles E. Pierce, of Tallapoosa (Ga.) Mills, Inc., was in the Boston market last week on business connected with his company.

At the annual stockholder's meetings of the two leading banking institutions of Hudson, N. Y., several textile men were elected directors. William A. Harder, president of the Rensalaer & Valatie Mills of Valatie, N. Y., was elected to the directorate of the Farmers National Bank. Frank B. Harder, president of the High Rock Knitting Co., of Philmont, and William H. Hearn, superintendent of the Union mills of Hudson, N. Y., were elected directors of the First National Bank.

George W. McNeir of New York City, was elected president of the McCleary, Wallin & Crouse Co., of Amsterdam, N. Y., manufacturers of carpets and rugs, at the annual meeting held at that city last week. He succeeds the late William McCleary, who was one of the founders of the company. Mr. McNeir has been vice-president of the company for several years.

A. I. Mitchell of the Cyril Johnson Woolen Co., of Stafford Springs, Conn., and L. S. Weiner of J. K. & L. S. Weiner & Co., New York, have left for the South, where they will spend some time.

Henry T. Whitin, treasurer of the Paul Whitin Manufacturing Co., Northbridge, Mass., has gone to Pinehurst for several weeks vacation, where he plans to take part in the golf tournaments in which he is an expert.

Miss Helen E. Knox of Manchester, N. H., was elected assistant treasurer of the corporation at a meeting of directors of the Dundee Mills of Hookset, N. H. Miss Knox, has, since its organization in 1901, has been paymaster of the corporation.

Charles F. Northey has accepted position as office manager for the Hope Knitting Co., Cohoes, and will, it is understood, be elected secretary of the company to succeed the late Michael J. Powers, who was re-elected secretary for the seventh term, a few days before his death which occured recently. Mr. Northey, who has been connected with the National Bank of Cohoes for a number of years, has severed his connections with that institution and has assumed the duties of his new position.

Nathan Hatch, president of the Fuld & Hatch Knitting Co., Albany, N. Y., was re-elected a director of the Albany Chamber of Commerce at the annual meeting last week. Mr. Hatch is one of the leading members of the Albany Chamber and is a member of practically all of the important committees. Of the several directors chosen he has the distinction of receiving the second largest number of votes. Parker Corning, president of the Albany Felt Co., was also selected a director. Although he has been active in the affairs of the organization, this will be Mr. Corning's first term on the board of directors.

Everett M. Kennedy, president of the Wessels Knitting Co., of Johnstown, N. Y., was elected a director of the People's Bank of that city, at the annual meeting of the stockholders. Henry Veghte, of the Diana Knitting Co., also of Johnstown, has been elected to the directorate of the Johnstown Bank.

Luciens N. Littauer, president of the Gloversville (N. Y.) Knitting Co., and Edward S. Parkhurst, president of E. S. Parkhurst & Co., were elected directors at the annual meeting of the stockholders of the Glen Telephone Co., which furnishes wire service to the Gloversville-Johnstown district. Mr. Littauer has also been elected a director of the Fulton County National Bank and Mr. Parkhurst a director of the City National Bank, both of Gloversville.

Alpha Garth, vice-president and general manager of the Passaic Worsted Spinning Co., Passaic, N. J., has been elected vice-chairman of the Industrial Council of Passaic Wool Manufacturers.

Dickerson G. Baker, consulting expert on plant equipment and production problems, has become associated with the Allen Spindle Corporation, manufacturers of twister spindles, Boston, Mass. Some of Mr. Baker's recent work has been with the Westinghouse Electric and Manufacturing Co., and the Remington Arms Co. Some years ago he was associated with the Saco Pettee Shops and later with the American Thread Co. at their Wilimantic plant, and has a thorough knowledge of textile machinery and spindle practice.

The numerous friends of T. Ashby Blythe, the well-known cotton yarn merchant of Philadelphia, will regret to learn that on Sunday evening, January 25, the taxicab in which he was riding, collided with a trolley car, resulting in the breaking of his collar bone. Since then he has been confined to the Polyclinic Hospital, in that city.

E. Frank Lewis, the well-known wool scourer of Lawrence, Mass., has presented to the town of Walpole, Mass., his ancestral home, together with $20,000 to equip and maintain the place as a community center. It will be known as the Bradford Lewis House, in honor of his father.

W. Sackett Duell, general manager of the Klauder-Weldon Dyeing Machine Co., was married last week to Mrs. Annie Livingston Carroll, at her home in New York City. Only relatives of the couple were present at the wedding.

The sympathy of his friends is offered Burton Etherington, of Franklin D'Olier & Co., Philadelphia, upon the death of his mother, Mrs. Sarah E. Etherington.

Frank J. Hale, general agent of the Saco-Lowell Shops, leaves this week for a month's vacation in the South.

J. B. Johnston, formerly manager of the ordnance department, Crucible Steel Co., of America, Harrison, N. J., has been appointed general manager of the Standard Scale & Supply Co., Pittsburgh, Pa.

A. S. Winter, formerly connected as advertising and sales manager with the Wm. Powell Co., has joined the sales force of the Fairbanks Co., Pittsburgh, and will represent them in southern Ohio.

J. H. Windle, who as it was recently reported in TEXTILE WORLD, is soon to leave for China and Japan in the interests of the Woonsocket Machine & Press Company of Woonsocket, R. I., announces that he will make this trip not only as selling agent of the above mentioned firm, but in the interests of The Fales & Jenks Machine Co. and the Easton & Burnham Co., both of Pawtucket, as well. He will sail from this country Feb. 19 and on his return will cover the West for these firms.

Maj. D. M. Bates has resigned as agent of the Lewiston (Me.) Bleachery & Dye Works, the resignation to become effective on March 1, and is to become associated with Day & Zimmerman, the Philadelphia industrial architects and engineers. Mr. Bates became associated with the Lewiston firm in 1912, going there from Joseph Bancroft & Sons Co., Wilmington, Del. In 1917 he was granted a leave of absence to engage in special war work in Washington, and continued in the work until the end of the war, holding the commission of major. Russell Gilpin, superintendent of the Lewiston Bleachery & Dye Works, will be in charge of the plant until Major Bates' successor has been chosen.

Carl Schlacter, superintendent of the Botany Worsted Mills, Passaic, N. J., has been elected chairman of the Industrial Council of Passaic Wool Manufacturers.

F. H. Shumway, superintendent for the Nockege Mills, Fitchburg, Mass., for the past eight years has severed his connections with that company.

Edward J. Entwhistle, formerly overseer of the silk department of the Paul Whitin Manufacturing Co., Northbridge, Mass., who has taken up his work as superintendent and general manager of a mill in Reynoldsville, Pa., was presented with a desk set, smoking set and travelling bag by employes of the Whitin plant on the eve of his departure.

Harry Wildsmith has accepted the position as assistant superintendent for the Johns-Manville Co., Manville, N. J. He comes from Philadelphia.

James C. Bennett has accepted the position as assistant superintendent and designer for Joseph Hall & Sons, Norwich, Conn. He comes from Lawrence, Mass.

William Rawley, designer at Amos Abbott & Co., Dexter Me., is to become superintendent and designer for the Wassookeag Woolen Co., Keene, N. H.

Arthur P. Morrill has been elected president of the overseers association of the Amoskeag Manufacturing Co., Manchester, N. H.

Fergus Waters, for the last twelve years master mechanic of the Plymouth Mills, Lawrence, Mass., has retired from active work. Before leaving he was presented several gifts by the employes at the mill.

John Warner, formerly starcher for the Waldrich Bleachery, Delawanna, N. J., has accepted a position with the Grasselli Chemical Co.

Lyman E. Small, night overseer of carding at M. T. Stevens & Sons Co., North Andover, Mass., has resigned to accept the position of overseer in the carding department of the Inland Woolen Mills, Spokane, Wash.

James Hunt has accepted the position as overseer of finishing for the Standish Worsted Co., Plymouth, Mass. He comes from the Perseverance Mills, Providence, R. I.

William Grindrod has accepted the position as overseer of weaving for the Tyer Cord Fabric Co., Columbus, Ohio. He comes from London, Ohio.

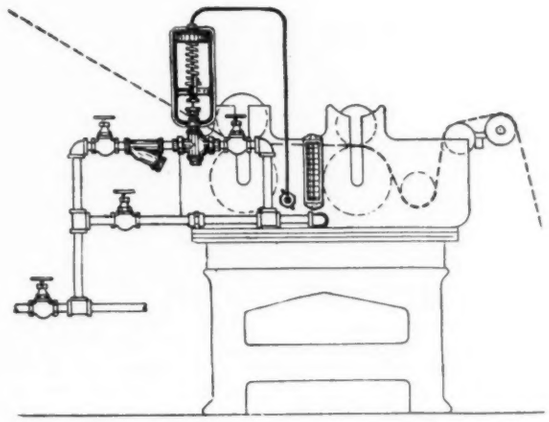
TECHNICAL SECTION

This section features Wool Manufactures, Jan. 3. Power & Engineering, Jan. 10. Cotton Manufactures, Jan. 17. Knit Goods, Jan. 24. Dyeing, Bleaching and Finishing, Jan. 31.

Automatic Control of Textile Processes

Value of Regulating Devices, Check-Up and Recording Instruments

IT is notable that when scientific management takes hold of any textile factory proposition for the purpose of increasing production and reducing expense, the organization which is immediately begun aims at getting facts for analysis about every item of the plant's operation. These form the only reliable basis upon which stable conditions can be built. It is rather a curious fact that such an analysis usually proceeds to gather information which is easily accessible to every manufacturer by methods well known and generally neglected. One of the most striking instances of this sort is to be found in the much neglected use of automatic control and recording instruments which are available for every conceivable purpose today.



SELF-OPERATING TEMPERATURE CONTROLLER APPLIED TO SIZE BOX

Efforts of most mill managements are usually absorbed in grappling with such big problems as labor, costs, market conditions and Government policies. It is the exception rather than the rule to find a plant where there is in evidence that amount of plugging into details of waste, lost motion, losses in fuel, and losses in spoiled stock, which the aggregate of these preventable losses would clearly justify. And there is no more conspicuous field for making these observations than that afforded for research, check-up, and correction which modern instrument makers have furnished with most comprehensive exactitudes.

WHAT THE WAR HAS SHOWN

We may wonder why a people like ours should need to be shown the necessity for saving coal; or further, why they should be told that they must save fuel and certain other commodities, or go without them. For it is evident that fuel and other saving during the war was not the result so much of the desire to save, as the pure necessity for it. Yet we recognize that we have made a permanent gain by our war studies, so far as they have gone, and we ought to realize further that they have been but comparatively primitive and incomplete. It would seem, then, that the logical thing to do is to call for full steam ahead in all efforts to tie up known facts with existing methods, and to follow up every advantage discovered by turning its results into useful conservation.

The writer recently visited an up-to-date dyehouse, where nothing had been spared to make it ideal both as a place to work in and as a productive unit of the plant. Conditions were healthful, cheerful and satisfactory to a progressive management from every point of view. Yet, when a thoroughgoing system for improving the methods and increasing the production of operatives throughout the plant was undertaken, it was found that the so-called mysteries of the processes were hardly more than myths. Facts which prove this assertion beyond question were simply the results of experiments conducted by the use of easily available control and recording instruments, which put practically every process beyond the pale of the rule of thumb. There was no longer any mystery about it.

SOME DETAILS OF THIS INSTANCE

To give technical data would be a betrayal of confidence which could not be considered here, but the facts may be illustrated in a general way in this manner:

Where in some methods of treating certain textiles in process liquors it was considered essential to continue the process for a certain length of time, it was found that the vital elements were not time at all, but certain strengths of ingredients in the liquors, and above all, temperatures controlled and kept constant. With this went a system, not of guessing whether the control devices were operating reliably, but a practice of testing with recording instruments which told the truth, whenever applied to one process after another. In passing it may be remarked that this check-up produced a sufficient amount of valuable data to make the use of such records not only valuable, but indispensable, after their charts were available for comparison. And these charts, in their character, were identical with the analyses based upon enormously more costly records carefully gathered for study of the labor and turnover problems, excepting that they contained technical instead of social data.

VALUE OF COMPARATIVE DATA

As a rule a single chart of a recording instrument is usually of very little interest. But when a study of the relation of carefully kept charts is made, in conjunction with other operating causes which previously were not understood to influence these records, facts are discovered whose value is understood only to those who know the significance of obtaining hidden information.

It is natural to be skeptical of such a proposition, but when, in going from plant to plant, one notes in one dyehouse or bleachery a set of conditions that are almost intolerable to operatives, and in another a set that is so different that it is like going from dog days into October weather, from one place to the other, the explanation does not lie with the manufacturing influences, but in something which is far more subtle. It is in the kind of initiative that is wrapped up in the package known as the general manager that makes the chief difference, not the class or kinds of goods handled, nor the climate, or labor conditions of the place.

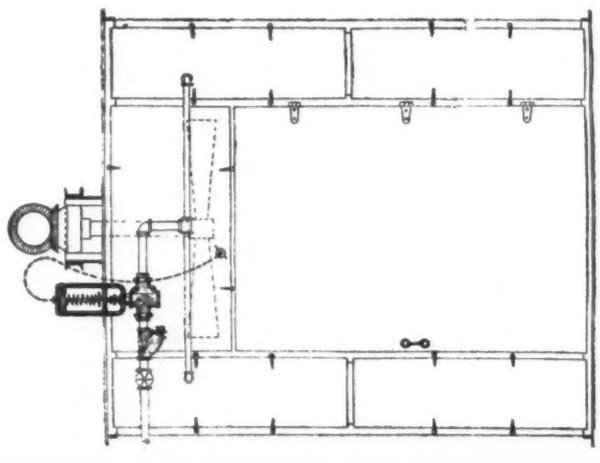
One kind of manager understands the value of comparative data; the other is likely to believe that there is no such animal to be found in his particular bailiwick. Is it necessary for "scientific" management to show us how to gather such data? It can be learned that way, but the service at the disposal of textile plants in this country today from instrument makers is more than superficially scientific. It is exact, detailed, helpful and persistent—and little appreciated by many manufacturers.

THE USE OF CONTROLLERS

It is generally true that use of devices for controlling pressures, temperatures and densities results from difficulties from not controlling them; or from leaving this control to the haphazard of the unreliable human element. This attitude is natural, but it is not up to date. Neither does it make use of opportunities for study, research and improvement which exact information gives. It does not seem logical to wait for some serious fault such as loss of help, depreciation of operative's health, or worse still, labor troubles, to call attention to problems which could be and should be attacked most aggressively without cessation, year in, year out. But observation of many textile power house, dyehouse and finishing departments show a myriad of conditions easily improved by thoroughgoing study and check-up, both of what is being done elsewhere, and in ascertaining what are the specific conditions peculiar to each particular case. There is no mode of procedure which so thoroughly prepares the road for progress as first to put all technical procedures of a plant under the best control obtainable, and then to keep a record of their performances, with details of cost, labor, etc., to go with them for comparative study.

RECORDING INSTRUMENTS

But however reliable may be the structure of control devices, and they are wonderfully well made, they need checking up, and many of them should be accompanied by permanent recording instruments. This is especially true of temperatures. It is not enough to put temperature control devices onto some equipment. There should be available a



TEMPERATURE CONTROL INSTRUMENT APPLIED TO DRYER

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Our line now comprises upwards of 200 definite dyes, of high-grade standard qualities, and produced in commercial quantities, for all classes of color-using requirements.

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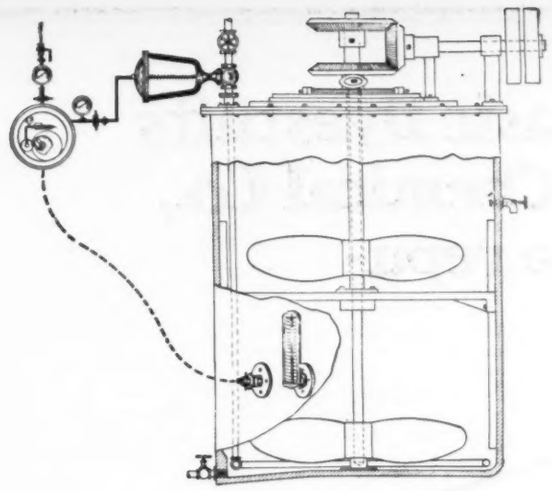


COMBINATION AUTOMATIC TIME AND TEMPERATURE CONTROLLER APPLIED TO A MIXING KETTLE

good set of recording thermometers, which may be applied at regular intervals for study of performances, and to enable gathering data both of internal and extraneous influences. If with these records, contemporary records are kept of pressures, densities, strengths of regular process liquors, boiling solutions, dyes for special uses, etc., there is almost no end of progressive data made available in a form which has special value to every manufacturer. For it is the advance information obtainable in this way which gives the greatest advantages in the trade. The cost of these instruments is ridiculously low compared with the value which they render in data available for study.

SERVICE OF INSTRUMENT MAKERS

In considering this subject, it is not necessary for any one man to proceed alone. Advice from practical, everyday sort of people who are broadly familiar with many plants is available. Instrument makers, and the people who apply control devices to all sorts of conditions in the textile field, are only too willing to consult with anybody and explain the great advantages possible only when comparative information is available. To this can then be added the line of individual effort which alone will bring out the best in each plant. When an inkling is gleaned of the difference between conditions as they exist, and what might be, with real economy in the bargain, the possibilities of technical study and analytical comparisons appeal with a real lure to progressive people.

When one considers that in the treatment of all liquors for textile processes, certain temperatures are most desirable, it is hard to understand why anything else is tolerated. If a boiling solution, for instance, is wanted, it is useless to apply more steam after a temperature of 212 degrees F. is reached, and after that point, an almost insignificant amount of steam will keep the liquors at the required point. Yet it is the rule rather than the exception to find steam being let into process kettles for hours after the right temperature is reached, apparently because it is nobody's business to pay strict attention to shutting off of the heat at the right time, and thereafter adjusting the steam flow to the small amount actually needed.

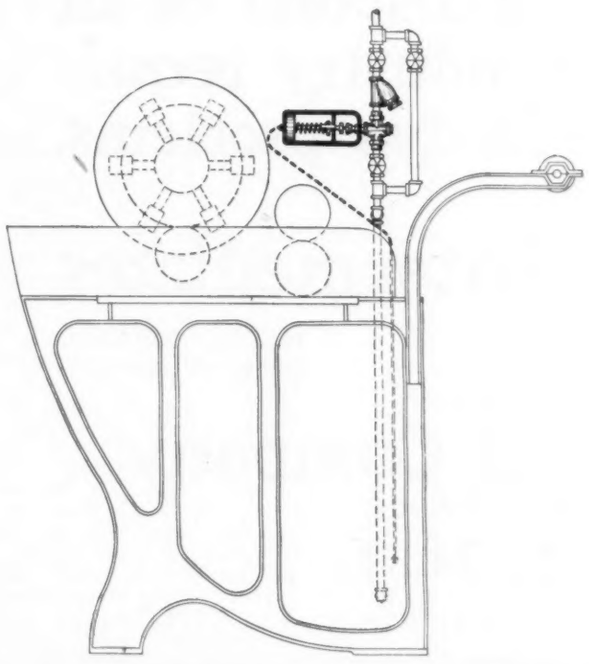
How common it is to have dyeing machines fouled up, and the surrounding air made almost unbearable from the escaping volatilized gases of dyestuffs which boil over in many plants. The losses of fuel in the wasted steam, loss of labor in the cleaning up, the losses of time in handling, losses of dyestuffs, and lowered morale of the environment are specific results of such conditions. They are easily rectified by the application of control devices, and the latter are easily checked up by recording thermometers, either applied at stated intervals, or permanently requiring a daily report chart to be sent to headquarters demonstrating the record of results.

USE OF CONDENSER WATER

It is commonly found that use of hot water from condensing apparatus is made in lavatories, warming coils in bathing rooms, and in other rooms. The temperature of this water is often a very capricious matter, and oftentimes the whole utility or comfort of places served by this sort of water is lowered by the fact that water is sometimes too hot or too cool. At times live steam should be added to it to bring it up to the required temperature, or more cold water should be applied to the condenser.

In cases involving the movement of heavy valves, the actual control of such valves requires a motive power other than the mere diaphragm action of the simple direct acting valves. Such requirements are met by use of compressed air, or electric motors to move especially heavy valves. Inasmuch as compressed air is now available in many mills, its use in this connection is possible without perceptible extra load on compressors. The cost of control equipment is insignificant when compared with the direct results obtainable, and in the indirect results in improved environment, and elevated morale of the workers. This latter is becoming one of the most tangible of all items being striven for today, for its value is one of that indispensable type which cannot be purchased by dollars and cents. Eliminating the human factor from petty jobs is one of the big things in its attainment.

Proper use of control and recording equipment makes use of the handy man, who is perhaps a man who has been injured and is being coddled along, an old fashioned and expensive employe. He could be and should be made a better producer by expanding his duties in many other directions besides adjusting valves. A silent set of watchers will do this far less expensively and more reliably than he ever could. And with them may be had a graphic record of what has been done.



AUTOMATIC TEMPERATURE CONTROLLER ON DYEING MACHINE

Points on Buying Caustic Soda

Trade Custom That Has Persisted in Spite of Its Deficiencies

By Charles F. Goldthwait

IN spite of the fact that caustic soda is one of the most common of the chemicals used in textile manufacturing, it is still bought on a peculiar and quite unsatisfactory basis. Inquiries to several manufacturers brought out in an unusually striking way some points that should be common knowledge.

In the first place caustic is usually quoted on the basis of per cent. sodium oxide, the standard strength being 76. This does not mean however 76 actual per cent., but is figured on the basis of the New York and Liverpool test of ancient date, using an old incorrect chemical equivalent for calculating the analysis. The true value of 76 per cent. New York and Liverpool is a little under 74 per cent. actual sodium oxide.

Caustic soda is manufactured by some firms which actually tests 76 per cent. and in judging quotations the basis of test must be known and carefully considered, as this 76 would run 78.45 on the N. Y. and L.

To make our first points clear the figures in Table 1 are given from the published tables, the first column being the N. Y. and L. test as usually quoted on the market, the second the actual per cent. oxide as it would be determined from analysis, and the third the equivalent per cent. of sodium hydrate which is the actual caustic soda.

TABLE 1.

N. Y. and L. Per Cent.	Actual Oxide. Per Cent.	Actual Hydrate. Per Cent.
74.32	72	92.90
74.84	72.5	93.55
75.35	73	94.19
75.87	73.5	94.84
76.39	74	95.48
76.90	74.5	96.13
77.42	75	96.77
77.94	75.5	97.32
78.45	76	98.06
78.97	76.5	98.71

It is of course to be understood that a chemist in making an analysis could report his result in terms of either test covered by the table. Here, however, appears another difficulty. From the fact that the amount of any given material in a substance being analyzed can be reported in terms of an equivalent amount of something else has arisen the habit of reporting caustic in terms of sodium oxide, the latter being in a sense a constituent of caustic.

$$\begin{matrix} NaOH & Na & H \\ = & O & + O \\ NaOH & Na & H \end{matrix}$$

2 molecules caustic equal 1 molecule of oxide and 1 of water.

Similarly sodium carbonate can be resolved into sodium oxide and other materials and more or less of this carbonate (soda ash) occurs in all commercial caustic.

REPORT MAY BE MISLEADING

The result is that the rated value of the caustic is too high in proportion to the amount of carbonate that it contains and in some cases may be quite misleading. In fact it may be possible for a sample with a high oxide rating to be actually lower in caustic than some other sample with a lower oxide test.

This can be seen from Table 3 but can be shown more clearly by some imaginary analyses using round numbers which are easily within the range of commercial goods. Assume that three samples of caustic each contain 2½% salt and other impurities, not

The Chrome, Acid and Basic Dyestuffs manufactured by Calco Chemical Co., have earned an enviable reputation for uniformity of strength, shade and solubility.

Calco

We also distribute dyes produced by other manufacturers that conform to the Calco Standard; this enables us to supply our customers with strong combinations. Our efficient laboratories are always at the disposal of all branches of the industry requiring assistance in dye problems.

Calco Quality Intermediates

ANILINE OIL
ANILINE SALT

PARANITRANILINE
BETANAPHTHOL

NITRO BENZOL
DIMETHYLANILINE

The Calco Chemical Company
MAIN OFFICE AND WORKS
Bound Brook, N. J.

NEW YORK BOSTON PHILADELPHIA CHICAGO

including carbonate, and that they contain the amounts of alkali indicated in the first two columns of Table 2. The third column shows the sodium oxide as it would be reported by analysis.

TABLE 2.

Sodium Hydrate. (Caustic) Per Cent.	Carbonate. (Soda ash) Per Cent.	Actual Oxide. (Na_2O) Per Cent.
96	1.5	75.28
94.5	3.0	75.00
93	4.5	74.72

The first would be a first class caustic although not testing up to 76% actual Na_2O. The last is a poor caustic although it would come up to 77% on the N. Y. and L. test as can be seen from Table 1. For a drop in caustic strength of 3% there is only a drop of a little over ½% in actual sodium oxide when the impurity is largely made up of carbonate.

To be perfectly definite quotations on the oxide basis should be made in terms of actual oxide equivalent to actual caustic. It would be better still to specify the per cent. sodium hydrate (actual). To introduce either of these terms into the trade at the present time would cause much confusion as many dealers (not manufacturers) do not understand the terms involved. The writer would therefore suggest that if it is necessary not to depart from trade practices the simplest specification covering caustic purchase by analysis would be a statement of the per cent. sodium oxide on the N. Y. and L., or actual test, as long as it is definitely understood which is meant, and a statement of the maximum limit of sodium carbonate in actual per cent. From these data the chemist can readily calculate the actual sodium hydrate if necessary and later check shipments by analysis.

A further custom which sometimes appears and might be used by an unscrupulous dealer to catch the unwary is the quotation on the basis of 60% oxide to which 16/60 must be added to get the price of 76%. This seems a useless calculation but is quite harmless if definitely specified.

To indicate the average of commercial caustics the analyses in Table 3 are given, all from different manufacturing sources with the exception of two or three figures inserted by the writer from his own tests to fill in omissions.

TABLE 3

	A.	B	C.	D.	E.	F.	G.
Sodium hydrate (Actual pure caustic)	95.81%	....	95.52%	96.25% to 96.8	NYL 97 to 97.27	93.7%	94.74%
Sodium carbonate (Soda ash)	3.19	1 to 1.5	2.5	1.4 to 1.6	.....	2.06	1.78
Sodium chloride (Common salt)	....	....	2.77	1 to 1.25	.....	3.76	3.53
Sodium oxide (Actual Na_2O)	76.1	75.6 to 76.4	74. to 74.9	75.53 to 75.83	75.25 to 75.5	....	74.47
Sodium oxide N. Y. and L. (Usual commercial test)	78.5	....	76	.....	77.7 to 77.9	76.17	76.87

In a few cases sulphates and other slight impurities were given but these are not essential to the main points of this discussion.

Caustic soda is always understood to be 76% N. Y. and L. as already noted unless definitely stated to the contrary. Some manufacturers can reach 76% actual and are inclined to favor selling on this basis, probably because some of their competitors cannot reach this figure. The manufacturers who do not get above 76% N. Y. and L. seem to prefer this rating probably because the figures 76 carry more weight with most buyers than the basis on which it is calculated. They would be excluded from competing for business where a specification was drawn for 76% actual. Here however is one of the main points of the whole discussion in some cases a 76% N. Y. and L. may be as good a caustic as another 76% actual. It all depends on what impurities are contained in it. A and C in Table 3 are both good caustics and are practically equal in actual caustic strength. A tests 76% actual oxide or 78.5 N. Y. and L. because the impurity is nearly all carbonate which contributes to these figures. C would be rated as 74% actual or 76% N. Y. and L. because the impurity is largely salt which does not contribute to the oxide test. For practically all if not all purposes one would be as good as the other.

Even F tests 76% N. Y. and L. but it is distinctly inferior in the amount of actual caustic. It should be obtainable at a lower price and only bought after careful consideration as to the effect of the impurities on whatever process is in question. It is therefore clearly shown that the oxide test alone is not a satisfactory specification.

A PROBLEM FOR THE LABORATORY

Whether the so-called high test caustic commands a premium is for the purchasing agent to find out when he is in the market for the goods. Whether it is worth more is a problem in chemical analysis for the laboratory, although it can be judged if complete analyses are furnished with quotations. It is reasonable to suppose that caustic has a value in proportion to its actual caustic content and this is probably true within certain limits, but in the case of caustic we have not only the factors of freight and handling of extra weight in a weaker product but also the possible effects of the impurities on textile operations.

A few years ago a product of the following analysis was offered to a bleachery at an attractive low price:

Sodium oxide actual	73%
Sodium hydrate	92.1
Sodium carbonate	2.8
Sodium chloride	3.55

The balance to make up 100% consisted partly of a sludge which appeared on dissolving and contained considerable amounts of iron. Such a product was obviously not suited to the purpose and was not used.

Impurities that are not so prominent may also be objectionable. For example several authorities have stated that neutral salts interfere with the saponifying action of caustic on cotton wax and its dissolving effect on protein materials present in the cotton. Such neutral salts include sodium chloride and a caustic like the following should be looked upon with suspicion unless it can be definitely shown that it answers the purpose.

Sodium oxide actual	71.45%
Sodium hydrate	89.85
Sodium carbonate	3.2
Sodium chloride	5.55

This sample represented a car lot that contained over 5½% of common salt.

Similarly the impurities in caustic for other purposes like mercerizing or soap making should be taken into account and limits specified if necessary.

A complete specification of course includes packing, delivery and similar details and may have to include a reference to referee laboratory in case of disagreement of analysis.

Caustic also varies in hardness, some of the solid having been particularly

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difficult to break up. If not caused by objectionable impurities, which seem to work the other way, such trouble is avoided entirely by using a caustic dissolving device that takes whole drums after stripping off the iron or by suspending the cake on a grate inside the top of the dissolving tank. The metal need not be taken off and if opened up a little the caustic will go entirely and readily into solution without steam and is ready to use after merely stirring up.

Where the ordinary drums of solid caustic of about 700 lbs. weight are not convenient, or where smaller units are used at one time, drums of one or two hundred pounds of solid can be obtained and where continuous small weighings are to be made the need is filled by ground caustic. The latter keeps best in iron drums and can be obtained in a small size as well as the usual 400 lb. container. A stock solution can of course be used as well as small amounts of the dry caustic for many purposes. A careful choice of the proper containers and form of caustic will supply any operation without the storage of broken drums, both dangerous and wasteful, and with comparatively little waste in handling.

Nobody in particular seems to be to blame for the unscientific method of selling and it appears to be one of the trade customs that has persisted through a great many years in spite of its deficiencies. Any inquirer will find that the real manufacturers are perfectly willing and glad to sell caustic on the basis of its actual strength as determined by analysis.

DYEING AND FINISHING

Balancing the Strains Which Exist in Woven Cloth

In a paper presented recently before the Society of Dyers and Colorists, at Bradford, England, Eber Midgley stated that a woven fabric as it left the loom was more or less a mass of unbalanced strains, and unless those strains were balanced there would be a tendency for the fibers and yarns to shrink irregularly and give the fabric a wrinkled and cockled appearance. The correct degree of pressure and tension was an essential factor. The lower the quality of material, the greater variation there was in the length and diameter of the fiber, and the greater necessity for crabbing to prevent uneven shrinkage.

Continuing Mr. Midgley stated that with regard to mechanical manipulation, to a certain extent the limit appeared to have been reached in the types of raw materials and the structure of yarns employed in the manufacture of textiles. There was, however, no limitation to the mechanical efficiency of the manipulation of the materials employed and the chemical treatment of those materials to provide them with new and improved properties. No section of the textile industry offered so many opportunities for original research and experiment in this respect as the dyeing and finishing section. There appeared to be a great opportunity for further application of chemical methods in cloth-finishing for obtaining improved handle, appearance, firmness and permanency of finish, in addition to providing fabrics with new properties.

Defects in woven fabrics often caused serious loss to spinners and manufacturers, and their prevalence had apparently increased, as the standard of perfection was higher twenty years ago than it was now. This was shown by the increased number of burlers and menders employed. The most serious irregularity and the most difficult to account for was styled "crimps." This was developed during the dyeing and finishing process, where the moisture developed the shrinking properties inherent in the fabric. Uneven shrinkage and movement of the fiber indicated an absence of uniformity in either materials or treatment.

Uneven conditioning of yarn on bobbins, so extensively practised at the present time, was to a considerable extent responsible for this type of defect. The outer layer of yarn on a spool received all the moisture applied—with the result that mechanical and, in some instances, chemical alteration took place—while the yarn under pressure nearer the centre of the spool was not affected to the same degree. These conditions very often resulted during dyeing and finishing in indefinable stripes being caused across the piece, of varying dark and light stripes of color, due to greater absorption of light by the portions of the yarn unevenly conditioned.

If the length of the pick on the bobbin was equal to the width of the woven cloth or a multiple of it, the unevenness caused by uneven conditioning would be fairly evenly distributed in the cloth. In other cases the defect would be noticeable.

During the discussion which followed, Professor Midgley said that one manufacturer who had been troubled with streakiness had removed the defect by altering the pick on the bobbin, and he also refused to use yarn which had been over-conditioned. Instead, an allowance was made to the spinner for the moisture otherwise added.

Business Literature

BROWN PYROMETERS. The Brown Instrument Co., Philadelphia, Pa.

This catalog, known as No. 12, contains 88 pages, 8 x 10½ inches, and 150 illustrations. It is filled with real information on the subject of pyrometers given in plain language so as to be intelligible to anyone. The catalog also gives valuable information regarding resistance thermometers, recording thermometers, pressure gauges, draft gauges, tachometers, time and operation recorders and other instruments of the Brown line. The growing appreciation in the textile industries of the value of controlling, indicating and recording instruments makes this publication especially timely.

Business News

Enlarging Sirrine Office

The engineering office of J. E. Sirrine, Greenville, S. C., is being enlarged so that the capacity will be more than doubled. This expansion is made necessary by the unusual amount of work being done by this concern. The drafting offices of J. E. Sirrine are the largest south of Boston and are among the largest in this country. The entire plant is equipped with the most modern architectural devices and new ideas are carried out in all departments.

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QUESTIONS AND ANSWERS

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD JOURNAL. Inquirers should give the fullest information and data possible. In the case of damage to material, a sample should be sent. In this way answers can be given which will be of immediate technical value to the correspondent and to others in the same line. Inquiries pertaining to textile processes, machinery improvements, methods of management, the markets, etc., are especially invited as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.—EDITOR.

Continuous Dyeing Machine for Felt Goods

Technical Editor:

We are in the market for a dyeing machine that will take a piece of cloth 30 ounces, 60 inches wide, in cuts up to 60 yards, these to be run through full width from a roll or truck and to lay out smooth while in the dyeing machine and then pass through a rinsing tank or box onto a roll or truck. Our dyer calls the machine a two-compartment dyeing machine. Perhaps you can suggest something for our purpose. (3717)

The type of machine suggested by your dyer is excellent for the purpose. These machines are called "continuous dyeing machines," and have spreaders to keep the goods full width and free from wrinkles. They are also made with more than two compartments, depending upon the class of dyeing to be done, and are provided with upper and lower immersion rollers besides squeeze rollers between each compartment, if desired. Of course, the compartments may have a heating coil, should it be necessary.

Stretch in Finishing Lawn

Technical Editor:

We are desirous of learning the percentage of actual stretch or gain in bleaching combed lawn, 40 inches, 88 x 80. — 8.50 grey, manufactured by reliable Eastern manufacturers, the width and finish approximating the sample attached. As opposed to the above, we desire to know the trade practice of reputable bleacheries as to the actual yardage returned under the same conditions. We understand that the same count and weight of the same size yarns and practically the same length staple of the same grade of cotton, shows variable results even when bleached by the same bleachery and same finish. It is the accepted and known average percentage that we desire to know. (3732)

The finished sample is approximately 40 inches wide. A bleachery would probably require a working loss of 1 to 2 per cent. to finish the goods to this width. We do not believe any finishing plant can handle it on a working loss of less than 1 per cent., whereas they would probably not require more than 2 per cent. The reason for this is that the finished width approximates closely the grey width, and there would be no gain in length, whereas there would be a slight loss in headings which would have to be cut off. It would be impossible to make any appreciable gain in finishing these goods unless the finished width were 1 to 1½ inches narrower than the grey width.

In the matter of variable results as regards stretch in bleaching and finishing goods made from the same count of yarns, and practically the same length of staple and grade of cotton, would say that such variations do occur and sometimes are unaccountable. It is a fact that goods woven on different makes of looms may give slightly different results. The treatment of the cotton before it is manufactured, that is, as regards the conditions under which it has been sorted, has been shown to give some variation. Then it is also true that the treatment of the goods in the cloth rooms of the grey goods mills also affects results as regards stretch in the finishing plant. For example, where the goods are brushed in the grey goods mill before shipping to the bleacher they may be slightly stretched, which affects the results in the finishing plant.

Particulars of Tire Fabrics

Technical Editor:

Kindly advise us which yarn should be the stronger in a woven piece of tire fabric: the warp, or the filling. Does your answer apply to all kinds of goods? Also, what should the average contraction of the warp and filling be, and what is a fair stretch to allow during frictioning. We are enclosing a sample of our fabric, and would like to have you tell us what the different twists are in the selvage, and what are the advantages of using right and left hand twists in the same strand of yarn. Will you also advise us at what temperature this cloth should be dried to find the moisture. (3750)

In the first question the writer assumes that the enquirer is referring to the breaking strength of the fabric. The filling will always be found to be the stronger. In every case where the tests have been made at a certain research bureau of national reputation, the filling was found to be the stronger. The average contraction will depend wholly upon the kind of yarn being used, but striking an average of four different kinds, the contraction was found to be 16 per cent. for warp and 10 per cent. for filling. To secure one hundred yards of fabric, you must have 116 yards of warp yarn; a 60-inch fabric will be 66 inches in the reed.

As to what a fair stretch would be during frictioning, it would depend wholly on the local conditions, each mill having conditions to meet that are different from other mills. Therefore, one would have to know the conditions before replying.

The advantages of using a right and left hand twist in the selvage yarn is that it makes a stronger and firmer strand of yarn for the filling to pull against, and the result is a firmer and finer finished piece of cloth. Another advantage is that the selvage lies flat and does not curl up. The first twist in the sample is regular, the second twist is regular, the single yarn is a reverse twist.

The temperature at which to dry out the moisture is two hours at 100 degrees Centigrade, or 212 degrees Fahrenheit in an electric oven. Tests in an electric vacuum oven are being made at the present time, and the same results can be secured at 50 degrees Centigrade and 105 degrees Fahrenheit.

A mill man replies as follows: Tire duck must be as equal as possible in strength, both warp and filling way. The filling runs into the cloth without any friction, while the warp is subject to the friction of the harnesses and reed. But the beating up of the filling weakens it to some extent, so that sley and pick being equal (which is usually the case in tire duck), the breaking strength of the cloth should be nearly equal both ways. This answer does not apply to all kinds of goods. It only applies to fabrics that are woven for special purposes, such as tire duck, airplane fabrics, gas mask cloths, etc.

There is no hard and fast rule governing contraction, either in warp or filling. The contraction in the warp is governed by the tension on the warp while weaving and the strength of the filling. If the warp is run slack, it will bend around the filling; if the warp is run tight it will bury itself more or less in the filling, particularly if the filling is of a soft nature. Apart from the tension or friction in the shuttles, the filling goes in the cloth free. If the filling is very strong and hard (as in the sample submitted) the warp will not make much impression on it. The best way to determine the contraction is to weave a yard with an average tension. Then proceed as follows:

Cut any number of inches from the cloth, (preferably 10 inches, but any smaller amount will do); take out a thread of warp, wet it to take out all crimp, and then measure the thread; subtract cloth length from thread length, and calculate the contraction.

To get contraction of filling, measure the width of warp in the reed, then measure the woven cloth, subtract cloth width from reed width and calculate the contraction.

The sample submitted has contracted about 15¼ per cent. in the warp, and about 6 per cent. in the filling.

It must not be inferred that the warp, being under greater strain and tension in weaving, will be weaker in the cloth, for while the filling is not under much strain when leaving the shuttle, the action of the reed while beating in the pick has a tendency to weaken the filling fibers.

Preventing Tendering of Dyed Hosiery

Technical Editor:

We manufacture half hose, in the body of which is used combed peeler yarn and one strand Japan silk. We want to dye these goods using sulphur black, so as to dye the cotton and leave the silk undyed, making a mottled effect. We then want to cross dye these same goods with an acid color, using 4 per cent. acetic acid to throw the color on the silk and topping off with 1 per cent. sulphuric acid. We should have explained that before cross dyeing, the goods are thoroughly washed, and we would like to know if any chemical reaction occurs to tender the goods because of being passed through the above process. We are enclosing herewith sample of the goods dyed in the sulphur black bath, and also sample showing the cross dyeing. (3736)

Tendering of these goods may be prevented by passing the material after the final dyeing with acid colors, through a bath of water containing a small quantity of formate of soda, or acetate of soda. As a rule, about 3 pounds of either of these two chemicals to 100 gallons of water will be found sufficient. Without after-treating with some such chemical as above mentioned, there is a possibility that remaining traces of sulphuric acid in the goods might react upon the cotton and cause serious tendering. When after-treated with a formate or acetate of soda, should there be present traces of a mineral acid, such as sulphuric, an immediate decomposition of the acetate (or formate) occurs, with a neutralization of the mineral acid, and liberation of the organic acid, which is not injurious to cotton. Such organic salts of soda are always added to the last wash water.

Bleaching Wool Blankets

Technical Editor:

As a matter of information will you please advise me through your columns why it is not possible and practical to bleach wool yarn prior to weaving it into blankets with colored borders? As nearly all blankets are made attractive by weaving in colored borders of lively dyes, and since none of these dyes, as far as I can find out by exhaustive trials, are fast to alkaline washing and bleaching treatments, if said blankets are peroxide bleached, the colors fade or are stripped, leaving at best dead shades which are unattractive. Thus, woolen blankets are universally sulphur-bleached, through which they go back to a dirty yellow after exposure and washing, not to say anything of the most disagreeable sulphur odor adhering to the new blanket. Would it not be better to bleach blankets by the peroxide bleach? (3741)

The principal reason why woolen yarns intended for the manufacture of white blankets are not bleached by any process preparatory to weaving is on account of the probability that spots or other disfigurations difficult to remove, might deface them during the subsequent mechanical operations.

The bleaching of manufactured blankets by the sulphur house method is largely a mechanical proposition, and offers advantages so far as cost is concerned over the peroxide process mentioned by this correspondent. It is not a matter which concerns the selection of the colors used for dyeing the yarns employed for the headings, because dyes are available that will withstand both the sulphur house bleach and the peroxide bleach.

As to sulphur bleached blankets ultimately changing to a yellowish tone on exposure, etc., this is the property of the wool and not of the bleach, but as to odor, if the blankets, as soon as they are removed from the sulphur house, are washed in water containing a trace of oil of vitriol, and then finally washed in a large volume of water, no odor will remain, although the tendency of later discoloration exists. Regarding this discoloration of "white" wool, it should not be overlooked that the quality of soap used for scouring has a distinct influence upon the permanent whiteness of the finished goods. Granting that the peroxide bleach is more permanent, will the ultimate consumer pay for the difference in cost?

Stitches to the Inch

Technical Editor:

We are making half hose on 160 needle machines, using 12s yarn. Kindly let me know how many stitches there should be to the inch. (3745)

The hose should have not less than 18 needles and not more than 20 needles to the inch, the measurement to be taken the day after the socks have been dyed and dried, as this is the condition in which they are sold.

Single Bath Dyeing of Cotton and Silk Hosiery

PHILANCO DYES P.A.E.

If you are experiencing trouble in obtaining uniformity in shadings, or have to resort to more than one bath in the dyeing of combination cotton and silk hosiery, we suggest that you substitute P. A. E. Dyes for those you are now using.

Only one bath will be necessary, and we guarantee that the shade produced will be identical with that shown in the Standard Color Card.

Our chemists will be glad to co-operate with you. Write us regarding your requirements.

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NEW MACHINERY AND PROCESSES

SPRAY HEAD

Full Mass Spray Produced at Minimum Friction Head Loss

The Star Brass Works, manufacturing engineers, 3114 Carroll Ave., Chicago, Ill., makers of spraying machinery and spray cooling pond equipment, have

FIG. 1

developed a new type of spray head for cooling pond service. It has been used on several hundred installations with uniformly satisfactory results. Fig. 1 illustrates this nozzle, which is sold under the name of "Spra-Rite," and Fig. 2 illustrates a typical complete cooling pond installation operating in connection with (surface type) steam condenser.

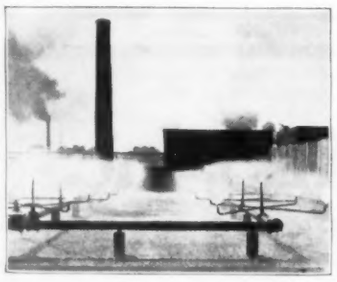

FIG. 2

As will be noted from Fig. 1, the Spra-Rite nozzle is simple in design and construction, and it is owing to this simplicity of design and exclusive internal construction that the manufacturers lay their claims for its extreme high efficiency when operating in connection with spray ponds. A full mass spray is produced at a minimum friction head loss in the Spra-Rite nozzle by reason of the fact that but two water passages exist in the nozzle core, but which owing to its peculiar design divides the water passing through same into four distinct rotating jets, and entrained through nozzle orifice in a uniform density spray of equal density through the entire cross section of the spray cone.

The pressure required at nozzles for cooling ponds of normal selection can be placed at from 6 to 8 pounds, depending on atmospheric conditions under which the system must operate and vacuum desired on condenser.

The Star Brass Works maintain a staff of especially trained engineers in the solution of water cooling problems, and will gladly forward literature to interested parties and specific recommendations for any proposed installation.

BLEACHING PROCESS

Goods May Be Bleached and Colored in One Operation

A process of bleaching has been developed by the Taxi-Nip-White Co. of America, Haines & King, owners and patentees, 601 West Girard St., Philadelphia, which has given remarkable results in demonstrations. It is claimed to eliminate all specks, motes, shives, etc., from raw cotton, yarns and pieces in from one and one-half to two hours, without the use of lime, soap or strong acids. Fast shades of the most delicate tints can be dyed by adding color to the bleaching bath, and goods which were inspected had a high luster and silky finish. It is claimed they gain in weight and tensile strength as a result of the process.

The process consists of dissolving the bleaching powder in cold water, putting this solution in a boiling bath, and then putting in the goods, which are brought to the desired white in one and one-half to two hours. The bleaching liquor is then drained off, and the vat filled with hot rinse water. This is in turn drained off and the vat filled with cold water for a second rinsing. Goods are then dried in the regular way.

It is explained that the powder solution mixed with cold water releases a gas when put in the boiling water, this gas permeating the textile material and destroying impurities.

The Taxi-Nip-White Company of America will be glad to demonstrate the process before any manufacturer or bleacher of cotton yarns or goods, either woven or knitted. They claim no change in equipment is necessary, that time and labor in handling goods are saved, and that raw cotton bleached by this process is left in better condition for carding and spinning.

Business News

A Triumph of American Chemical Manufacture

The Dow Chemical Company, of Midland, Michigan, has just completed another year of successful manufacture of Synthetic Indigo.

They began the manufacture of this dye in a modest way in December, 1916, and since that time have perfected the process and enlarged the plant until today they are an important factor in this industry.

This development was made possible only by the efforts of a large chemical and engineering force which has had the benefit of years of experience in chemical manufacture, and as a result, The Dow Chemical Company produced from the very beginning a successful dye, which is recognized by all users to be of a superior quality.

Soon after the successful production of Synthetic Indigo, this company began the experimental production of Indigo derivatives, many of which produce desirable shades of color that are faster to light and washing than Indigo itself. Among these are *Midland Blue R, Midland Vat Blue 5B* and *Cadet Blue*. These dyes are now being used extensively, and the demand for them is daily increasing.

The Indigo plant of this company is being taxed to the utmost to produce enough Synthetic Indigo and its derivatives to supply the enormous demand, and although its capacity has been increased many times since its inception, its present capacity will soon be again doubled to enable them to supply the unusual demand for Indigo products.

The future of Indigo looks very bright to the Dow Company provided the Federal authorities grant sufficient protection which this new industry deserves.

Westinghouse Officials Promoted

The Westinghouse Electric & Manufacturing Company has announced the appointment of a number of promotions among its officials at East Pittsburgh. Among the more important of these are the following:

Alexander Taylor, for many years Manager of Works, has been made Assistant to Vice-President in general charge in all plants of production, stocks and stores.

R. L. Wilson has been promoted from position of General Superintendent to Works Manager of the East Pittsburgh Works.

E. R. Norris has been appointed Director of Works Equipment, in charge of machinery, tools and methods in the various plants.

C. B. Auel is made Manager of the Employes' Service Department.

Other appointments announced were: G. M. Eaton has been made Chief Mechanical Engineer of the company; C. W. Johnson and H. W. Cope, Assistant Directors of Engineering; C. H. Champlain and E. S. McClelland, Assistant Works Managers; John E. Bonham, Assistant to Works Manager; E. S. Brandt, Supervisor of Equipment and Methods.

The following were appointed as Managers of the engineering departments indicated:

A. M. Dudley, Automobile Equipment; R. P. Jackson, Material and Process; F. E. Wynne, Railway Equipment Department; and G. H. Garcelon, Small Motor.

Open Philadelphia Office

The Green Fuel Economizer Co. announces the opening of their own office at 1006 Finance Building, Philadelphia. The office will be in charge of W. F. Wurster, assisted by G. E. Kille. The company was formerly represented in this territory by the Baker-Dunbar-Allen Company. Mr. Wurster has been doing engineering and sales department work with the Green Fuel Economizer Company for the past six years.

Gives Employes Share in Profits

The Morse Chain Co., Ithaca, N. Y., has devised a plan whereby every employe who has been with the company a year or more receives an annual dividend on his wages, averaged as if invested in the company's business at the same rate as drawn by the stockholders on the company's investment.

The company has also decided to put up a service building which will include an employes' store and cafeteria, both of which will be run at cost.

Change Firm Name

A change of name is announced for the Wm. Graver Tank Works, East Chicago, Ind., manufacturers of steel tanks and general steel plate construction, as well as water softening and purifying equipment. Hereafter the company will be known as the Graver Corporation. There will be no change in management, ownership or directorate.

Business Literature

THE CARDING POINT, Smith & Furbush Machine Co., Philadelphia, Pa.

This is a valuable addition to the ranks of house organs. Vol. 1, No. 1 carries an editorial word of good wishes to the employes from the company. A technical article on Feed Rolls is the main feature of the issue. Personal notes complete an interesting number.

RECENT TEXTILE PATENTS

CARDING machine, Stripping mechanism for. 1,327,696. A. G. Boozer, Providence, R. I.

COTTON seed linter. 1,327,724. R. E. Montgomery, Lawton, Oklahoma.

DYEING device. 1,327,661. H. M. Dudley, Philadelphia, Pa.

DYEING machine, Hosiery. 1,327,756. H. M. Dudley, Philadelphia, Pa.

DYEING machine, Skein. 1,327,657. H. M. Dudley, Philadelphia, Pa.

FABRIC, Apparatus for making strand. 1,327,826. W. Jameson, Springfield, Mass.

FABRIC, Treating. 1,327,904. W. C. Carter, Radnor, Ohio.

FABRIC treating device. 1,327,659. H. M. Dudley, Philadelphia, Pa.

FIBER treating machine. 1,327,663. H. M. Dudley, Philadelphia, Pa.

LOOM, Circular. 1,327,676. J. A. Kennedy, Pawtucket, R. I.

LOOM feeler mechanism. 1,327,788. E. S. Stimpson, Hopedale, Mass.

SHUTTLE, Automatically threading. 1,327,709. H. W. Hakes, Millbury, Mass.

WINDERS, Automatic cutting-off device for thread. 1,328,196. N. Rail, Lowell, Mass.

WOVEN pile fabric. 1,327,683. F. Ott, Norristown, Pa.

Mill Incorporations

LOS ANGELES, CAL. A. M. Chapman, Inc., has been incorporated to manufacture worsted yarns. They have purchased site for a mill and plans for the building are now being completed. They are anxious to obtain the necessary machinery for one complete unit with which to start work. Their address is, 816 Jefferson street, Los Angeles.

DOVER, DEL. The Carolina Yarn Co. has been incorporated to manufacture cotton worsted and silk yarns. The capital is $300,000 and the incorporators are T. L. Croteau, C. H. Blaske and S. E. Dill, all of Wilmington, Del.

PATERSON, N. J. The Aboyoun Silk Co., 23 Camden street, has been incorporated here with a capitalization of $50,000. Geo. Aboyoun, 124 Danforth avenue, is named as agent.

PATERSON, N. J. The Carnation Silk Co. filed papers of incorporation here giving a capitalization of $50,000. Harry Ryshpas, 111 Governor street, is named as agent.

PATERSON, N. J. The Hudson Textile Corp., 136 Washington street, has filed papers of incorporation giving a capitalization of $100,000. The incorporators are Joseph Ruetten, agent; Wm. Henderson, Jr., and August Canziani.

NEW YORK, N. Y. The Craftwear Textile Co. has been incorporated to manufacture silk fabrics with a capital of $50,000. The incorporators are S. L. Riser, 1084 Bryant avenue, new York; P. H. Barsky, New York, and Bennett Schotz, Brooklyn.

We are manufacturing

ESSEX DIRECT ORANGE R
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EXCELLENT COLORS TO USE IN DYEING UNION GOODS, AS THEY DYE THE COTTON A DEEP SHADE AND LEAVE SILK AND WOOL CLEAN

Product Samples and Dyeings Sent on Request

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Manufacturers of Aniline Colors

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Domestic and Imported Colors

Midland Vat Blue R
Midland Vat Blue 5B

Faster, Brighter, Stronger and Cheaper than
INDIGO

DYESTUFFS AND CHEMICALS

TECHNICAL CHEMICALS INACTIVE BUT FIRM

Market Interest Limited to Heavy Chemicals—Export Demand and Scarcity Strengthen Alkalies

The industrial chemical market appears to have reached a level for the time being. Price movements have been decidedly limited, most materials holding firm at previous quotations. This is significant in view of the quiet which has settled down on trading. The past week has been characterized by unusual inactivity which however has had no depressing effect on the market tone.

The notable exception to this lack of interest is found in the market for heavy chemicals. Unusual demand coupled with continued and intensified scarcity has established bleaching powder and the important alkalies in an unshakeable position. Producers are hard put to keep up with their orders and spot lots are still commanding liberal premiums.

BLEACHING POWDER

First hands are hardly in a position to take on new business in bleaching powder for anything like nearby delivery. Available quantities in second hands bring well over the nominal initial price of 2½ cents per pound. Actual operations are consequently limited, and it is correspondingly difficult to quote the outside figure. Different sections of the market name this from 3 to 3½ cents. Factors look for increased strength in the future.

CAUSTIC SODA

Demand for caustic soda from foreign sources has helped to maintain the unusual position of this market and to sustain producers in their prediction of further advances. Spot lots are hard to get, and immediate delivery commands $4.50 or better per 100 pounds of the 6 per cent. material.

SODA ASH

Varied quotations on spot quantities of soda ash are still heard in the market. Limited amounts bring prices from $2.10 to $2.25 per hundred pounds for the 58 per cent. light. Yearly contract prices by producers are still being quoted at approximately $1.65 to $1.75 for the 48 per cent. material.

ARSENIC STILL HIGHER

Further advance has been noted in white arsenic, this material appreciating by one cent to 12 @ 13 cents per pound. Red arsenic is unchanged.

FORMALDEHYDE

Limited trading was noted in formaldehyde. Sales were heard at 46 cents which is somewhat under last week's quotations. The unusual strength which has featured this chemical, however, is still in evidence, and available quantities continue limited.

ACIDS

A peculiar condition exists in citric acid. It will be recalled that this material has eased by slow stages until the crystals reached the low level of 84 to 85 cents. While these figures still hold with producers, spot lots have become scarce so that second hands have been enabled to obtain varying prices for prompt shipment. These have ranged up to $1.20 to $1.25. Excited fluctuation has existed however and the market is a difficult one to quote accurately from day to day.

Still greater strength has been noted in oxalic acid, this material being priced at 40 to 42 cents per pound.

DYESTUFF AND CHEMICAL QUOTATIONS

Prices quoted below were corrected this week on the New York market, and we believe them to be accurate, though largely nominal.

MISCELLANEOUS CHEMICALS

Acetone	15½	—	16
Alumina-Sulphate Com.	2	—	2¼
Iron Free	2¾	—	3
Alum, Ammonia, lump.	4¼	—	4½
Ground	4½	—	4¾
Ammoniac, Sal, white, gn.	16	—	17
Arsenic—white	12	—	13
Red	21	—	24
Bleaching Powder—Dom.	2¾	—	3½
Blue Vitriol	8¼	—	8¾
Chrome—Acetate, 20 deg.	6	—	6½
Copperas	1¼	—	1¾
Epsom Salt, Tech., 100 lb.	1 90	—	2 00
Formaldehyde	46	—	50
Glauber Salts, 100 lbs.	1 50	—	1 75
Glycerine (C. P.) bbls., dms, extra	25	—	25½
Cans	27	—	27½
Distilled, yellow crude	24½	—	25
Iron—liquor, copperas free 18 deg.	—	—	—
Nitrate, true	9	—	9¼
Com.	2	—	2¼
Lead—Brown acetate	12½	—	13
White (crystals)	14	—	14½
Potash-Bichromate	30	—	32
Chlorate crystals	15	—	16
Permanganate	65	—	70
Soda acetate	6¾	—	7¼
Bichromate	20	—	22
Bisulphite, 35 degs.	1½	—	2
Nitrite	14½	—	15½
Phosphate (Commercial)	3¾	—	4¼
Prussiate, yellow	25	—	27
Sulphide, 30% crystals	2¾	—	3¼
Tartar emetic, tech., powdered	67½	—	70
Do., tech, crystals	67	—	70
Cream of tartar—Crystals	55	—	56
Powdered	55	—	56
Tin—Crystals	42	—	42½
Bichloride, 50 degs.	18	—	21
Oxide, bbls.	60	—	61
Zinc dust	11	—	14

ACIDS

Acetic, 28%, per 100 lb.	3 00	—	3 50
Citric, crystals	34	—	55
Spot lots	1 20	—	—
Formic, 70%	35	—	40
Lactic, 22%	5	—	6
Muriatic, 18 @ 22 deg., per 100 lb.	1 50	—	2 75
Nitric, 36@42 deg., per 100 lb.	6 00	—	7 50
Oxalic, dom.	40	—	42
Sulphuric, 66 deg., per ton	21 00	—	24 00
Tannic, U. S. P.	1 40	—	1 45
Technical	65	—	80
Tartaric crystals	69½	—	—
Powdered	70	—	—

ALKALIES

Ammonia, aqua, 26 deg.	8¾	—	9¾
Borax, refined, crystals and powdered, bbls.	8¾	—	9¾
Potash, carbonate, 80-85%.	25	—	26
Caustic, 70-75%	22	—	25
Soda Ash, 58% light, per 100 lb.	2 10	—	2 25
Bicarbonate	2¾	—	3½
Caustic, 76% per 100 lb.	4 50	—	4 60
Sal, 100 lbs.	1 35	—	1 60

NATURAL DYES AND TANNINS

Archil extract conc.	24	—	26
Camwood	14	—	16
Cutch, solid	11½	—	12
Fustic: Solid	19	—	24
Liquid	12	—	14
Gambier (in store)	13	—	15
(To arrive)	—	—	—
Hematine paste	11	—	15
Crystals	22	—	29
Hypernic chipped	6	—	7
Est.—51 degs., red shade	22	—	—
Indigo—Bengal	2 00	—	2 50
Guatemala	1 60	—	2 00
Madras	95	—	1 00
Kurpah	1 60	—	2 00
Indigo extract	18	—	23
Logwood chips	3¼	—	4
Extract, liquid, 51 degs.	10	—	15
Crystals	23	—	30
Nutgalls, blue Aleppo	1 25	—	1 30
Chinese	33	—	35
Osage Orange Extract	12	—	13
Osage Orange Crystals	20	—	..
Quercitron, per ton	..	—	..
Extract, 51 degs.	7	—	9
Sumac, basis 28%, ton	87 00	—	100 00
Ext., doon., ref., 51 degs.	6½	—	8
Extract, stainless	13	—	15

DYESTUFF INTERMEDIATES

Alpha Naphthylamine	40	—	45
Aniline oil	35	—	36
Salt	40	—	50
Beta Naphthol, sublimed	68	—	70
Distilled	55	—	60
Dimethylaniline	90	—	1 00
Metaphenylene Diamine	1 10	—	1 20
Paranitraniline	1 30	—	1 40

EARTHS, PIGMENTS AND ABRASIVES

Barytes, domestic, prime white, ton	30 00	—	35 00
China Clay, domestic, ton.	15 00	—	20 00
Chrome Yellow	25	—	28
Fuller's Earth, powd., 100 lbs.	1 50	—	2 00
Lithopone	7	—	7½
Silex	22 00	—	40 00
Ultramarine Blue	15	—	45
White Lead (basic sulphate)	8	—	10
Zinc oxide, Amer. process.	9	—	9½

OILS AND SOAPS

Castor Oil No. 3, bbls.	19	—	20
Lard oil, prime winter in-edible, gal.	2 05	—	2 10
Extra No. 1 gal.	1 60	—	1 65
No. 1, gal.	1 55	—	..
Olive oil, denatured, gal.	3 00	—	..
Olive oil, Foots, lbs.	20	—	22
Red oil, lb.	17	—	18
Soap, chip	17	—	..
Soluble oil, 50% castor, lb.	15	—	16

ADHESIVES AND SIZING MATERIALS

Albumen, Blood	Nominal.		
Egg	1 50	—	..
Dextrine—Potato (Dom)	13	—	14
Corn, carload lots, bags 100 lb.	6 20	—	..
Do, bbls., 100 lb.	6 40	—	..
Glue, Fish, per gal.	1 25	—	1 30
Gum Arabic, amber sorts	16	—	16½
Gum, British, carload lots, bags 100 lb.	6 50	—	..
Do., bbls. 100 lb.	6 70	—	..
Sago flour, spots	6	—	7
Starch, corn, bags, carload 100 lb.	5 00	—	..
Do., bbls.	5 20	—	..
Potato	7	—	8
Rice	21	—	25
Wheat	9	—	10
Tapioca flour	6	—	9

COAL TAR DYES

Direct Colors—			
Black	90	—	1 00
Black, Fast	2 00	—	2 10
Blue, 2 B	60	—	1 00
Blue, sky, ordinary	2 50	—	3 00
Blue, sky FF	4 00	—	5 00
Brown	1 25	—	2 00
Brown M	2 75	—	3 00
Green G	1 25	—	2 00
Green B	1 25	—	2 00
Red, fast F	2 75	—	3 00
Red, Congo	90	—	1 25
Red, Benzo Purpurine 4B.	1 70	—	2 25
Violet N	3 60	—	..
Yellow, Chloramine	2 45	—	3 00
Yellow, Chrysophenine	2 25	—	3 00
Yellow, Chrysophenine, ex. conc.	4 50	—	5 00
Sulphur Colors—			
Black	30	—	30
Blue, Cadet	45	—	60
Blue, Navy	80	—	..
Blue, Navy, Conc.	1 85	—	..
Brown	20	—	75
Green	1 65	—	2 25
Green, Olive	80	—	1 00
Yellow	85	—	2 00
Basic Colors—			
Auramine O	2 50	—	4 00
Bismarck Brown	95	—	1 10
Chrysoidine	75	—	1 10
Fuchsine Crystals	5 00	—	5 50
Malachite Green	2 75	—	4 50
Methylene Blue	2 50	—	3 25
Methyl Violet	2 50	—	3 25
Rhodamine B ex conc.	25 00	—	30 00
Rhodamine B	5 50	—	7 00
Safranine B	4 20	—	5 00
Victoria Blue B	6 00	—	7 00
Acid Colors—			
Black	1 25	—	1 60
Blue	2 50	—	5 50
Brown	1 50	—	2 50
Green	1 25	—	6 00
Orange	50	—	1 00
Red	1 50	—	2 50
Yellow	1 25	—	4 00
Chrome Colors—			
Black	1 25	—	2 25
Blue	2 50	—	4 00
Brown	1 75	—	3 00
Red	1 50	—	3 50
Developing Colors—			
Black B H	2 95	—	..
Prinuline	1 75	—	2 10

INTERMEDIATES FIRM AND COLORS INACTIVE

Scarcity of Many Materials Strengthens Former Market, While Dye Trade Still Waits on Washington

The discrepancy between conditions in the market for dye intermediates and that for finished colors still exists. Further strength is noted in the former owing to the shortage of many important products and to the difficulties which producers are experiencing in keeping up with the orders already booked. The dyestuff situation, on the other hand, is complicated by the legislative situation in Washington, and both producers and consumers have adopted a waiting policy pending some solution of the problem of the importation of German colors. It is believed that both sides of the question have realized the necessity of some definite action on this matter in the near future and there is a disposition in the trade to expect an early compromise.

INTERMEDIATES STRONG

Throughout the list of intermediates price firmness, attended by lack of extensive amounts of spot material, is in evidence.

The inside price of alpha naphthylamins has advanced to 40 cents, with the outside figure still named at 45 cents.

Beta naphthol, distilled, has been featured by something approaching a nominal condition, the low quotation advancing to 55 cents, with demand well in excess of supply. The sublimed is firm at previous levels.

Continued shortage has maintained the high price of paranitraniline, the range being $1.30 to $1.40.

Aniline oil is unchanged at 35 to 36 cents. The salt is quoted variably from 40 to 50 cents, with difficulty to obtain the material at the low figure.

DYEWOODS

A prominent manufacturer of natural dyes states that he does not believe quercitron bark extract of 51 degrees is being produced at less than 7 cents per pound, while in some instances he understands the price of this material is considerably more.

Sumac extract, domestic of 42 degrees is quoted at 7 cents per pound, and the 51 degree at 8 cents.

DYE PRICES

With the waiting market in finished colors described above, there is little change in the prices of these materials. Quotations are generally firm.

Imported colors are still in demand. The call for patent blue appears to be especially good, with supplies insufficient to meet the demand.

Dye and Chemical Notes

An application for a charter of incorporation as the Nu-Dye Manufacturing Company, will be made by John M. Hamilton, William G. Hamilton and Robert C. Hamilton, all of Philadelphia. The object of the company is said to be the manufacture and selling of dye stuffs.

RENSSELAER, N. Y.—The Grasselli Chemical Co. and the Sterling Products Co. which operate the old Bayer plant on Riverside Avenue are planning considerable expansion for the spring, it is reported. The Bayer property which includes several acres of land purchased some time ago ex-

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Malachite Green
and
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AVE one-third in cost, time, labor, steam
Do away with ammonia
Improve your goods, by using

PAROXAN in Scouring
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Samples free for practical tests

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FOR ASSISTING THE BLEACHING PROCESS

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No danger of tendering the goods.
No dangerous fumes.
Not necessary to neutralize the goods after they are bleached.

Saves time and money *Investigate Now*

Quaker City Chemical Company
2738 NORTH BROAD ST., PHILADELPHIA, U. S. A.

tends south of the plant to the city line. According to reports this land is to be utilized, and new buildings to be erected there. Only recently a new railroad spur connecting with the New York Central Railroad has been constructed through the land.

A report from Yorkshire, Eng., states that a committee of dye users has gone to Germany to select and purchase £2,000,000 worth of dyestuffs, owing to the shortage of suitable dyes for trade use here. It is reported that the government is financing the scheme. Recently the *Board of Trade Journal* announced the formation of an expert commission in connection with the distribution of dyestuff supplies from Germany under the reparations clause of the peace treaty. The visit to Germany, however, is said to be for the purchase of dyes, additional to the amount British users are entitled to under the treaty provisions.

Arrangements have been completed by the Van Schaack Chemical Co., 3580 Avondale street, Chicago, Ill., for the erection of a new brick factory building, to provide for increased capacity. The W. F. Peterson Co., 127 North Dearborn street, is the building contractor.

The Naugatuck Chemical Co., Naugatuck, Conn., is arranging for the erection of additions to its plant, for increased operations. The proposed work includes the construction of three new one-story reinforced-concrete buildings, about 60 x 90 feet. Lockwood, Greene & Co., 245 State street, Boston, Mass., are engineers for the company.

The European Color and Chemical Co., River Road, Hoboken, N. J., has broken ground for the construction of the proposed new plant to be located at Park avenue and Nineteenth street, Weehawken, N. J. The structure, which will be used for increased capacity, is estimated to cost about $15,000. The company has also awarded all miscellaneous contracts to insure the early completion of the plant.

The Mutual Chemical Company of America, 1348 Block street, Baltimore, Md., has let contracts for the construction of a new addition to its plant for increased capacity. The structure will be two-story, about 100 x 200 feet, and is estimated to cost $80,000. John M. McCracken is manager. Morrow Brothers, Fidelity Building, Baltimore, are the contractors.

The Dooner & Smith Chemical Co., 376 Mulberry street, Newark, N. J., will build a new garage and warehouse building at Railroad avenue and Chestnut street, estimated to cost $15,000.

The General Chemical Co., New York, has completed arrangements for extensive additions and improvements in its various plant buildings, to provide for increased operations.

Early return to the use of German dyes in America unless Congress finds some way to strengthen the American industry and bring prices down, was predicted by George Weiss of New York in an address before the National Association of Dyers and Cleaners, in convention at Cincinnati, O.

Dye Embargo

(*Continued from page 26*)

"Germany has them as resources ready to resume her commercial fight without any handicap through destruction such as other plants have suffered. Particularly, I might call attention to what we saw, as a matter of contrast, to a plant which manufactured dyestuffs in the northern part of France, and which the Germans had deliberately destroyed, breaking the machinery in a perfectly devilish manner so that it could not be operated for years.

"The attitude of the men with whom I came in contact, such as Dr. Duisberg, of the Bayer, and Dr. Schluhurst, and other plants we visited—I cannot use their exact words, but the substance was: 'America will soon forget and we shall soon resume our friendly relations with the old crowd once again.'

"As one goes through those plants and stands in the shadow of them, one cannot help but get the impression that they were the units of the potential force that Germany had to carry on the war; they were the very sinews. There was one plant, one of the Badische, where they made enough nitrates to more than supplant what they had ever previously imported from Chile. Without them they could not have carried on the war for three months, and it was their life-saver. And two of those plants which were built for dyestuffs—but with the devilish idea back of them to make explosives and poisonous gas—were the very cause of our having, perhaps, 38,000 or more men left dead in France. And, moreover, those plants, despite the terms of the armistice that they should be dismantled, were found to be absolutely intact and ready to make poisonous gas within two weeks if they should resume. One of the things that we did was to stop and cause them to be dismantled so far as the poisonous gas was concerned."

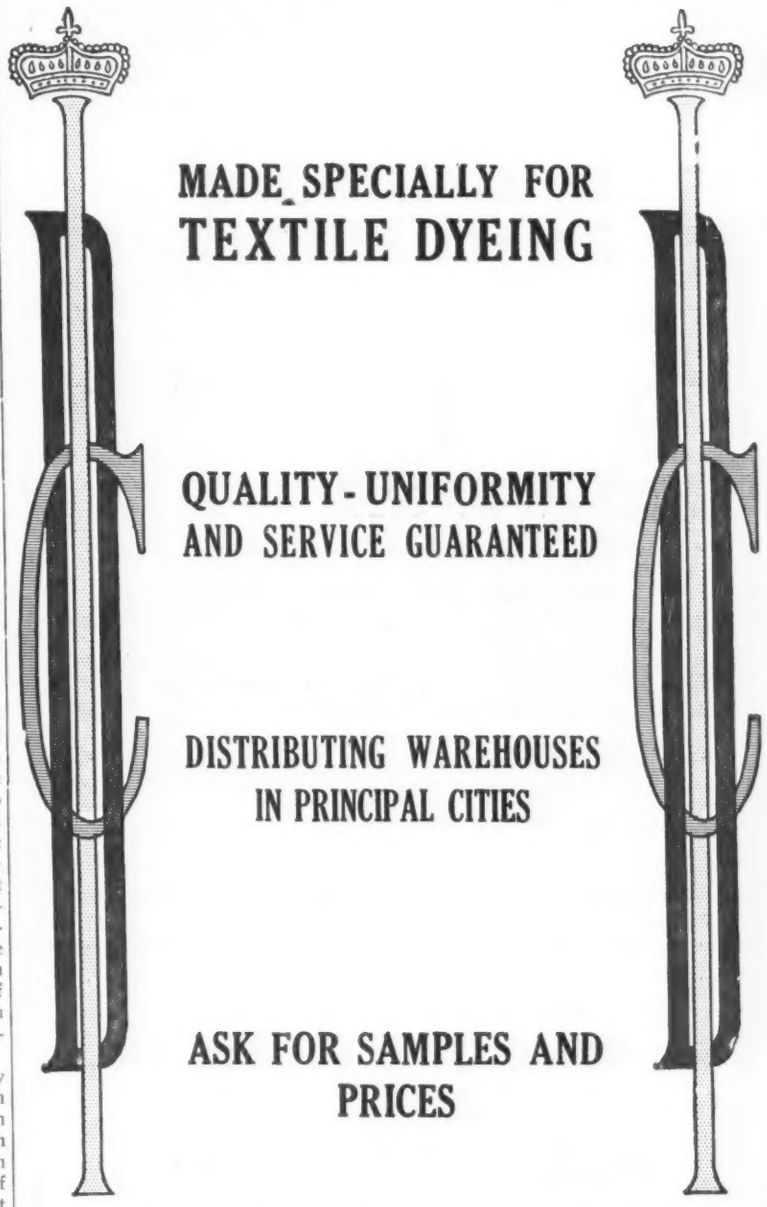
DYE CONSUMERS TESTIFY

Daniel F. Waters, owner and proprietor of the Germantown Dye Works, and President of the Master Dyers Association of Philadelphia, who has been in business as a practical dyer for forty years, told of the progress which had been made in dyeing dating from the old days of natural dyes before synthetic dyes came into popular use, and of the situation that existed at and after the outbreak of the great war in Europe, spoke of what he knew of the attitude of German manufacturers towards American consumers, asserted that he had come before the Committee to ask for the protection of the domestic industry and stated that he was not using today one ounce of German dyestuffs in his plant. He told the Committee that in the suit of clothes he wore, which was dyed with American dyes, there were only 32 cents worth of dyes. He stated that the American sulphur black was superior to the German dye of the same color.

Frank D. Cheney, of Cheney Brothers, Silk Manufacturers, South Manchester, Conn., filed a statement in which among other things he set forth that he had examined the dye cost on twenty-two representative qualities of silk fabrics and found that the lowest dye cost per yard on 26-inch washable satin which sold at $2.15 per yard amounted only to 7/100ths of a cent per yard, and that the highest cost in the twenty-two qualities examined was upon a 50-inch piece cotton filled velour which sold at $9 per yard, amounted to 34 and 9/10ths cents per yard. He said that the costs varied between the limits he had named, the average being twelve cents per yard and the average selling value of the cloth being $4.70 per yard. Mr. Cheney was very emphatically of the opinion that a licensing system was necessary.

James G. Clark, vice-president of the United States Finishing Company, New

LOGWOOD
HEMATINE



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GLENS FALLS, N. Y.

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Bleaching Powder

Alkali Special Chlorinated Lime

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A Shade for Every Taste!**

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SULPHUR BLACK DEVELOPER
Imparts a lustrous jet blue black shade to Sulphur Black Dyed Cotton Material. Saves dye stuff, cost very low.

ANTIMONELLE (Pat'd.) Superior to Tartar Emetic, saves almost 50%
CHROMIUM FLUORIDE Crystal form. Contains no free mineral acid.
TIN LACTATE A toner for Alizarine Reds. Imparts bright effect. Superior to Tin Oxalate.
RONOPOLE OIL Highest grade of finishing oil in all strengths. Perfectly soluble.
ANTIMONY LACTATE Dry and liquid form for prompt delivery.

We also manufacture textile soaps, soluble oils, softeners, scrooping and water proofing compounds, mordants finishes, and other chemical specialities applicable for the dyeing and finishing of textiles.

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Dye Tubs and Vats of Wood

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EVERYTHING IN WOOD OR WOODWORK 1849

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Textile Manufacturers

Should be interested in DIAX for the following reasons:

FOR BLEACHING
Purer whites are obtained, less tendency to weaken fibres, saving of time and chemicals.

FOR DYEING
More level dyeings are obtained with economy of dyestuffs. Thorough degumming of previously dyed and finished goods are easily and cheaply performed.

FOR MERCERIZING
Has increased affinity of the cloth for the caustic liquor, gives better lustre, the mercerizing lye kept clearer and lasts longer.

FOR PRINTING
It is especially useful in making adhesive sizes and finishes, and less expensive, and is devoid of color and easily removable.

FOR FINISHING
Thin fluid mixings are produced which penetrate the cloth better, giving superior results in the handle and feel of the cloth, and economy in the use of starch and dextrine.

Further information gladly given. Write

Malt-Diastase Company

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Laboratories: Brooklyn, N. Y.

York, stated that his firm was in the business of bleaching, mercerizing, dyeing and printing, operating five plants, three in Rhode Island and two in Connecticut. He said that his firm was a consumer of dye-stuffs, and that last year they put through in value of merchandise, bleaching, dyeing and printing, about seventy million dollars worth of materials and in the work employed about three thousand persons.

Speaking of dyes at the outbreak of the war, he said that two of the plants were threatened with a shutdown and that:

"If it had not been for the enterprise of some of our American friends, those plants would have been completely shut down, due to the lack of anilin oil; we had a contract with a German company, and at the outbreak of the war that supply was immediately shut off.

"We feel that it is vitally necessary and important that this dyestuff industry be firmly established in this country. We do not want to be in a position to be dependent upon Germany for our supply. We believe in a tariff. We are good Republicans in our organization, but we do not think a tariff alone will take care of this problem."

Henry B. Thompson, president of the United States Finishing Company of New York, whose vice-president, Mr. Clark, had previously testified, made a statement in connection with the War Trade Section of the Department of State, and in the course of his testimony told the Committee that he had wanted to appear as a witness in favor of the licensing bill, but that he had been unable to reach Washington in time to do so. He, however, hoped that he would be allowed to say that he advocated the proposed legislation.

A letter was filed from Mr. Franklin W. Hobbs, president of the Arlington Mills of Boston, who could not attend, in which Mr. Hobbs strongly advocated the licensing plan, setting forth his reasons why as a textile manufacturer employing a large number of workmen he believed that the American dye industry should be protected fully and amply.

DYE MANUFACTURERS

James T. Pardee, vice-president of the Dow Chemical Company, of Midland, Michigan, which had been referred to by Colonel Fries as being the only dye company from which mustard gas could be obtained, explained the operation of the German Bromine Trust and how it endeavored to ruin his corporation.

Mr. Pardee asserted that a protective tariff without a licensing feature or some form of embargo would not protect in the matter of indigo.

Renee duPont, president of the E. I. duPont deNemours & Company, Wilmington, Delaware, testified as a dye manufacturer. He asserted that the industry was so unique that no protective tariff which it would be possible to pass would protect it. In explanation of his attitude he analyzed the dye industry from a manufacturing standpoint. His first point was on the question of costs and he held that there was no way in which the cost of a product could be figured accurately. He illustrated this by several instances and by comparing the products with those of an ordinary line of industry where with a fixed raw material 100 per cent. of yield, or approximately that percentage, could be relied upon, and stated that that was not true in the dye

(*Continued on page 79*)

Liquid E B G Chlorine

E. B. G. Liquified chlorine gas is the only 100% bleaching agent and the most approved and scientific method of Textile Bleaching.

99.98% Pure

It possesses many advantages over chloride of lime.
It is of absolutely uniform quality.
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Contains no sediment or sludge.
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CHENEY BROS., South Manchester, Conn.
April 15, 1919.

May we send you full particulars?

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4 CEDAR STREET NEW YORK

MILL NEWS

Cotton

*Ozark, Ala. The Rainbow Manufacturing Co. will erect a 168 x 80-foot mill construction building costing $12,000 and install machinery to cost $30,000. It has ordered equipment to include electric power with 2,246 spindles for a daily capacity of 1,200 pounds of wrapping twine and rope. W. M. Hunter is the architect and engineer. This company was among the new organizations recently announced.

*Fall River, Mass. The French Thread Mills, recently incorporated, succeeds the French Manufacturing Co. James H. French is president and Steven L. French is treasurer of the company. It has an authorized capitalization of $750,000, of which $500,000 is outstanding.

Amsterdam, N. Y. A new firm to be known as Leroy Blanchard & Co. has been formed in this city with local capital to engage in the manufacture of yarns and cloths. The company which was incorporated recently, has a capital of $10,000, divided into $100 shares with a par value of $100 each. Leroy Blanchard is president of the new concern, and the other stockholders are F. A. Houlain and D. G. Smith of this city.

Belmont, N. C. R. L. and S. P. Stowe will organize a $1,000,000 company to build a 20,000-spindle mill for combed yarns. They have ordered the machinery.

Gastonia, N. C. Samuel S. Shuford will organize a $200,000 company to build a 5,000-spindle mill for spinning fine combed yarn.

Gastonia, N. C. Announcement has been made by W. H. Adams of the Citizen's National Bank here, that he and G. R. Spencer are to build a mill for the manufacture of fine cotton yarns. No name has been chosen for the new mill, but a site has been secured south of the city and building will begin next fall. The plant will be equipped with 5,000 spindles and production is expected to start early in 1921.

*Gastonia, N. C. Organization of the Mildred Cotton Mills has been perfected with the election of C. B. Armstrong as president; C. C. Armstrong, vice president and assistant treasurer; A. K. Winget, treasurer and J. R. Armstrong, secretary. The plant, as previously noted, will be equipped with 20,000 spindles for the manufacture of cotton yarns. At the meeting of the stockholders of the Mildred mills for the election of officers it was announced that the Helen Cotton Mills would soon be organized at Rock Hill, S. C. The latter will be the fourteenth in the chain of mills headed by C. B. Armstrong.

Hickory, N. C. A. Alexander Shuford will organize a $500,000 company to build a cotton yarn mill. The machinery has been purchased.

High Point, N. C. J. Hampton Adams and Robert R. Ragan will build a yarn mill.

High Point, N. C. Thurlow Kearns will organize a $100,000 company to build a yarn mill.

Lexington, N. C. Foy & Shemwell will build a textile mill.

Newton, N. C. The Secretary of State at Raleigh on January 26 issued articles of incorporation to a newly organized textile company which is to construct and operate a cotton and woolen mill under the name of the Newton Textile Mills, Inc. The capital stock is placed at $100,000 and the incorporators are W. E. Bacon, C. D. Winecoff and A. B. Kuhn, all of Newton.

*Troy, N. C. The Rhyne-Anderson Mills Co., recently organized as purchaser of the Capelsie Cotton Mills, will produce single, two and three ply 16's cotton yarn. The plant is equipped with 5,000 ring spindles.

*Corsicana, Tex. The Navarro Manufacturing Co. has organized and S. W. Rabb is manager. It will erect a 160 x 72 and 50 x 40 foot building costing $60,000 and install $100,000 machinery to include 2,500 spindles and electric power drive. The daily capacity is to be 2,500 pounds of twine. This company was noted recently as incorporated.

*Montgomery, Ala. The Montgomery Cotton Manufacturing Co. recently incorporated to take over the Montgomery Cotton Mills will operate 36 cards, 6,844 spindles and 160 looms and the production of 37 inch, 44-40, 3.50 sheetings. The mill is being repainted inside and the floors, staircases and other woodwork are being put in good repair.

*Talladega, Ala. Contract for the weave shed and an extension to the Highland City Mills has been awarded to the Gallivan Building Co., Greenville, S. C. As previously noted, the Highland City Mills and the Chinnabee Valley Mills were sold to Wellington, Sears & Co., Boston, who will operate them under the name of The Samoset Cotton Mills.

*Summerville, Ga. Report that the Summerville Cotton Mills is planning to build a new addition is erroneous.

*Baltimore, Md. The new addition to the plant of Lion Bros. Co. will cost $145,000.

Somersworth, N. H. The Great Falls Manufacturing Co., has awarded contract to Clark and Lee, of Boston, for the erection of several tenement houses and the contract for painting of these has been awarded to the Charles H. Locke Co., Boston.

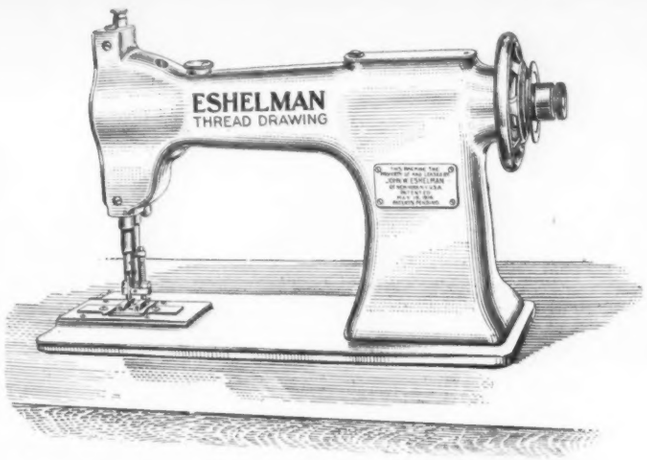
Bakers, N. C. The Mountain View Mills will add 5,000 spindles and thus double its present equipment.

Cherryville, N. C. Melville Mills have increased capital by $11,000 and will build an addition.

*Mount Holly, N. C. The Alsace Manufacturing Co. recently incorporated to take over the Mount Holly Manufacturing Co., is remodeling the plant and plans to materially enlarge its equipment. At present 24's carded yarns are being made but as soon as they can be received combers will be installed. C. E. Hutchison is president and treasurer of the new company which has a capital stock of $250,000.

West Warwick, R. I. The Warwick Mills plan to increase its capitali-

*Indicates previous mention of project.



A Few Facts About the Eshelman Thread Drawing Machine

—it draws threads, preliminary to hemstitching, as fast as 12 or 15 girls can do by hand.

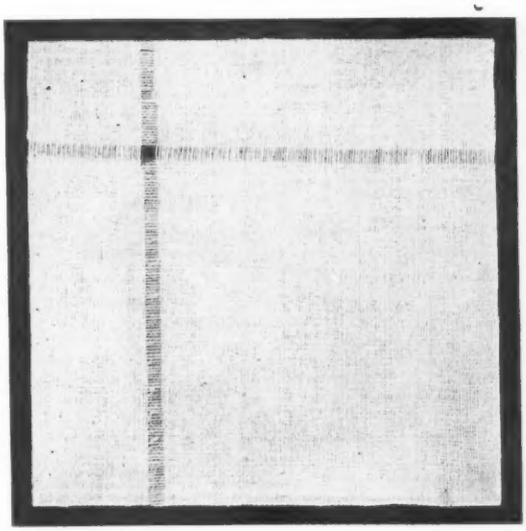
—its work is every bit as good as that of the most experienced girl.

—it is offered on a free trial basis to reputable manufacturers. If you are now punching holes instead of drawing threads, you can make genuine hemstitching at only a slight additional cost.

If you are drawing threads by hand "the Eshelman" will draw them just as efficiently at a fraction of the cost. In fact, Department Store Buyers report that consumers are as well pleased with goods produced on "the Eshelman" as with the hand drawn product.

The compactness of the machine is evident from the illustration above. It is made of the finest materials properly machined and thoroughly tested. For complete information about "the Eshelman" write for our new Booklet.

John W. Eshelman, Jr.
Lancaster, Pa.



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MILL NEWS—Continued

zation from $800,000 to $1,600,000 and will use the increased capital for new mill buildings and extra working capital.

WESTERLY, R. I. The Westerly Textile Co. has awarded contract to the Charles H. Locke Co., Boston, to paint and thoroughly renovate their mill.

*BAMBERG, S. C. Contract for the extension to the Bamberg Cotton Mills has been awarded to Potter and Sheckelford, Greenville, S. C.

*DARLINGTON, S. C. The Darlington Manufacturing Co. is to install individual electric drives for the machinery in their extension, consisting of some 40 motors as well as a generator in their main mill. J. E. Sirrine, of Greenville, is the engineer.

*CHATTANOOGA, TENN. The Thatcher Spinning Co. has awarded all contracts for buildings and machinery to double its 30,464 spindle hosiery yarn mill, as previously outlined. The Turner Construction Co. of New York, has the building contract and the Whitin Machine Works, Whitinsville, Mass., will furnish the machinery. There will be a three story mill building and a four story warehouse, of reinforced concrete. The machinery will cost $650,000.

Wool

*CAMDEN, Me. The Penobscot Woolen Co. recently organized here, has a plant equipped with two sets of cards, three pickers and twenty-two looms and is to install 1,020 woolen spindles. Wilfred Rodgers is president and Ruel Robinson is treasurer of the company. The capital stock is $100,000.

*ELMVILLE, CONN. The Killingly Worsted Mills are to install 100 new looms in their plant here. As previously noted the Killingly mills recently purchased this plant, operating it before the purchase under lease.

*UNIONVILLE, CONN. The branch shoddy plant here of J. Broadbent and Sons which was recently destroyed by fire is expected to start up again in the near future. It will be equipped with 4 pickers and 4 garnetts.

COHOES, N. Y. The plant of the Little Falls Fibre Co. which was badly damaged by fire recently is being rapidly put into condition and operations will be resumed in full shortly. Part of the plant is already in operation and repairs are being rushed. The machinery in the lower floors which was most seriously injured is being entirely overhauled and some of it replaced by new equipment. The repairs it is said will cost about $10,000.

CORINTH, N. Y. It is reported in this village that a firm manufacturing woolen gloves and mittens, with main plant at Mayfield, N. Y., has secured a lease of the building in the rear of the Palmer drug store and will shortly establish a branch plant for the manufacture of the firm's lines. The name of the firm is not mentioned in the report. The building which is a two story affair and formerly used as a garage is to be entirely remodeled, the work having already been started.

*BRIDGEPORT, PA. The Hosey Worsted Co., of Norristown, denies report that they are to make changes in their branch plants.

PHILADELPHIA, PA. An addition is contemplated to the mill building occupied by the Model Mills, Ontario and I streets, which will be utilized as a tenant mill. This will be five stories in height, of concrete construction, with two elevators, loading platforms, etc. Three floors have already been leased.

PHILADELPHIA, PA. The Franklin Worsted Co., manufacturers of men's wear, has purchased a plot of ground 224 by 335 feet, at the southeast corner of G and Venango streets. This will be used for the erection of a new factory building in the near future.

Knit

COLEMAN, Ga. C. A. Brown, proprietor of the Brown Milling Co., is considering plans for the formation of a hosiery mill with capacity of about 100 dozen pairs per day.

NEWARK, N. J. The Sports Knitting Mills have filed notice of organization to operate at 336 Waverly avenue for the production of sweaters. Charles Marx heads the company.

*AMSTERDAM, N. Y. Morton and Vanderveer expect to start production in their new mill by March 1. The plant is equipped with 40 knitting machines and 10 loopers, and is operated by electricity. The company is in the market for a various assortment of knitting and finishing machinery.

TROY, N. Y. John C. Groat, who recently secured a lease of the old Troy Knitting Co. plant on Pawling avenue, East Side, has commenced operations. Improvements of an extensive nature that have been under progress for the past few weeks have been completed. Six sets of cards, six sets of spinning and other machinery are now being operated and the product of the plant for the time being will be woolen yarns, although it is understood that later on knit goods will also be manufactured. Only part of the plant is now being used, and about 200 persons are employed, but it is said that this number will be greatly increased later. Mr. Groat himself is in charge of the plant.

DUNN, N. C. A large brick building here is being remodeled for the purpose of installing machinery for a new hosiery mill which is to be established in Dunn as another link in the chain of mills operated by the Durham Hosiery Mills Co. of Durham. The building, at the terminus of North Wilson avenue, will be ready to receive its equipment next month. One hundred people who are to form part of the complement of operatives are now being taught for the work they will have to perform.

*FRANKLIN, N. C. The Franklin Hosiery Mills have determined plans A 126 x 96-foot concrete, steel and glass building costing $20,000 will be erected. It will be equipped with 70 knitting machines, 100-horsepower electric plant, etc., costing $50,000, for a daily capacity of 400 dozen pairs of hose. This company incorporated recently.

*BALTIMORE, MD. Work on the new addition to the Varsity Underwear Co. will start next month and will cost approximately $100,000.

** Indicates previous mention of project.*

Armour's Flint Shredded Textile Soap

Its economy and satisfactory performance in every use has made Flint Shredded Textile Soap the *preferred* soap in leading mills. Hundreds of textile mills have proven its ability equal, if not superior, to any other soap in the quality of work produced.

Guaranteed to contain 88%, or more, *Real Soap* (comprising the fatty anhydrids and combined alkali) and 12%, or less, moisture. In addition, it is guaranteed to be pure, neutral and odorless. Harmless to colors and produces a satisfactorily finished product. Rinses easily.

Efficient for Scouring Fulling and Finishing

This soap is dried out in flakes by means of the Proctor Dryer. Contrast it with solid soaps in barrels, which contain 30% to 50% moisture. Flint Shredded Textile Soap dissolves quicker—saves time. Furthermore, in Flint Shredded Textile Soap you get full soap value for your money.

Flint Shredded Textile Soap promotes efficiency because it does the work better and in less time. It reduces soap bills because it goes farther per pound.

Write today for sample and prices.

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ALIZARINE COLORS *of* Unusual Strength

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Better Work With No Increased Cost

The use of Wyandotte Textile Soda is not limited to one department of the mill, but the principle which it represents may be profitably applied to several different processes.

Doubtless in all your experience you have never used any article of an alkali nature that could be applied to so many purposes as are claimed for

Wyandotte Textile Soda

and because of the unusual nature of these claims it is appreciated that they must be proved before you can be asked to accept them.

All we ask is that you withhold your decision regarding this product until you give it a trial. The satisfaction which you feel after trying it will do the rest. We have no doubt of your continuing its use because it does the things you want done—the things you never could do with other alkalies.

Supplementing the uses of Wyandotte Textile Soda we also manufacture two other alkali products

Wyandotte Concentrated Ash

and

Wyandotte Kier Boiling Special

Further information on any one or all of these products furnished for the asking.

THIS TRADE MARK

IN EVERY PACKAGE

Order from your supply house

The J. B. Ford Co.

Sole Manufacturers

Wyandotte, Michigan

MILL NEWS—Continued

GLOVERSVILLE, N. Y. Perrin & Co., manufacturers of gloves, have awarded a contract to P. M. Simons, Johnstown, for the erection of the proposed new brick and mill construction addition to its plant, three-story, about 100 x 100 ft. to cost $50,000.

POUGHKEEPSIE, N. Y. The W. A. Lawrence Co., Inc., manufacturer of knitted mesh fabrics, etc., is rushing to completion the construction of its new two-story plant, about 60 x 80 feet, located on Parker avenue. All miscellaneous contracts have been awarded to insure the early completion of the works, and it is planned to inaugurate operations at the earliest possible date.

SCHENECTADY, N. Y. The Gloversville Knitting Co. has started operations in its new branch on Congress street, Mount Pleasant. The building which was purchased by the company and which was formerly used as a theatre has been entirely remodeled in the interior making a well-lighted modern mill. The machinery for the plant which was purchased in England consists of the latest type of flat knitting machines and it is understood that most of this equipment has already been installed. The output of the plant will be woolen gloves and mittens.

BOILING SPRINGS, N. C. The Winner Hosiery Mill Co., manufacturer of men's half and misses' ribbed hose, has filed notice with the Secretary of State of an increase in its capitalization to $100,000, to provide for general business expansion.

HENDERSONVILLE, N. C. The Grey Hosiery Mills will build a $50,000 addition.

*CARTHAGE, N. C. The Carthage Hosiery Mills report that they have not yet completed plans for their new dye and finishing department and will not start building before next summer or fall.

READING, PA. The Glasser Hosiery Co., is to build a three-story brick and reinforced concrete mill, 40 x 110 ft. at a cost $40,000.

*SELINSGROVE, PA. The Selinsgrove Hosiery Co. in addition to the new machinery recently purchased expects to place orders for 72 additional knitting machines. The company is now building a new addition to its plant.

*LOUDON, TENN. The Loudon Hosier Mills are now building a new mill at Newport, Tenn., and intend to build another new mill at Sevierville, Tenn., at an early date.

SPOKANE, WASH. The Spokane Knitting Mills have purchased a one-story building, 100 x 60 feet, to which they will add another story and then equip the building with machinery for the manufacture of sweaters and knitted novelties.

Silk

ANNVILLE, Pa. Congressman A. S. Kreider, of Annville, who is interested in the A. S. Kreider chain of shoe factories in Eastern Pennsylvania and in various textile plants, will open a hosiery mill in the former Fisher Knitting Company building at Lykens, Pa. Alfred Stanley will have charge of the plant.

PATERSON, N. J. The C. & S. Realty Co., 126 Market street, is understood to have completed plans for the construction of a new silk mill, to be located on McBride avenue, estimated to cost about $60,000. Joseph DeRose, 119 Ellison street, is architect.

*GLOVERSVILLE, N. Y. Operations in the new plant of the Fulton County Silk Mills will it is understood be fully started by early spring. The new mill, which is one of the most modern plants in this section, is of brick construction with two large fireproof towers. It is erected on the site of the original mill which was demolished to make room for the new structure. The equipment of the mill will be all new machinery to be used for the manufacture of silk cloth for underwear and gloves.

*TURNERS FALLS, MASS. The McLane Silk Co., has not as yet settled upon plans for the enlargement of its plant. Recently the capital stock was enlarged from $300,000 to $600,000.

PATERSON, N. J. The Diamond Silk Co., 448 East Eighteenth street, manufacturer of high-grade dress silks, has awarded a contract to Peter Van Kirk, 83 Fulton street, for the construction of a new five-story mill, brick, about 75 x 205 feet, at Eighteenth street and Ninth avenue, estimated to cost $200,000.

PATERSON, N. J. Rosen & Vogel, 78 North Tenth street, have awarded a contract to the Michael Lynch Contracting Company, 94 Court street, for the erection of a new two-story silk mill, to cost about $45,000, on North Tenth street.

PATERSON, N. J. The Expert Silk Co. will start moving into their new mill on Vreeland avenue next week, and hope to be fully installed in their new quarters by March 1. A complete equipment of throwing machinery has been shipped from the makers, and will be installed and started at once.

PATERSON, N. J. The Madison Silk Manufacturing Co. has leased the space in the Strange Mill now occupied by the Expert Silk Co. After getting possession about 100 new looms will be installed.

PATERSON, N. J. The Berwyn Silk Co. expect to add about 30 new looms to their plant of 58 looms located at Beech and Morton streets.

UNION HILL, N. J. The Clifton Textile Co., is having plans prepared for the construction of a group of new buildings varying from one to three stories in height, of brick, steel and concrete construction, for increased operations. It is said that the project is estimated to cost in the neighborhood of $500,000.

GLOVERSVILLE, N. Y. The Imperial Silk Co. is having plans prepared for the construction of a new two-story brick addition to its plant, about 35 x 65 ft., to cost $15,000. Morrell Vrooman, Gloversville, is architect and engineer.

EASTON, PA. Thirty looms have been moved here by Altshuler Bros. from their plant in Paterson, N. J., and installed in the new mill they recently built in the Glendon section. New looms are being shipped from the makers, and it is expected the throwing machinery they have on order will be delivered late next summer. Throwing will be done for their own needs only.

** Indicates previous mention of project.*

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This instrument has a "sun" within itself. Twenty hours (one day) under the rays of the Color Fade-Ometer will give you the same result as two weeks under the rays of a June sun. The rays of the Fade-Ometer have exactly the same intensity.

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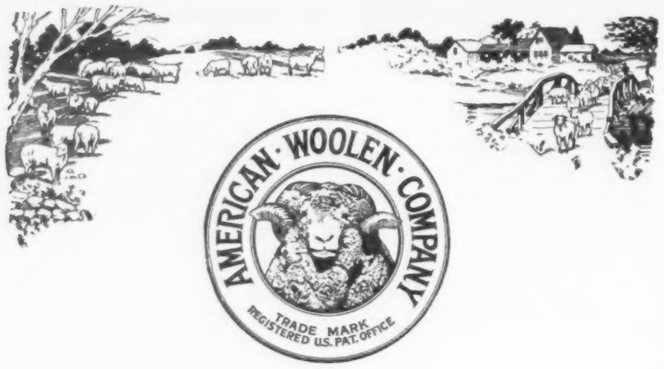

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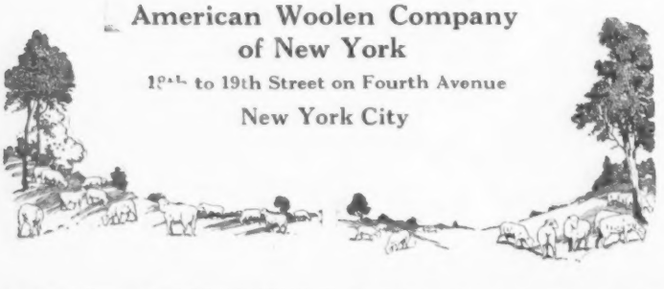

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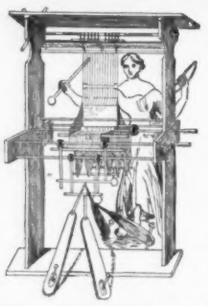

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WOOL MANUFACTURES

DELAY IN OPENINGS; FINE SERGES PRICED

Men's Wear Market Firm in Tone—Big Call for Worsteds a Feature—Testing the Situation

Unprecedented delay in the opening of the fall selling season in the men's wear market seems, however, attended by a calmness that indicates general confidence in the basic situation. Much of the movement inaugurating the new season shows a wholesome determination to maintain operations, as far as possible, within strictly conservative limits. Competitive elements show increasingly, as sellers seek to set the heavyweight samples in action, and it is felt that no one factor or group will have everything its own way.

All through the trade there is a disposition to meet issues as they arise. Manufacturers are firm in their intention to sell only such amounts as they are positive of being able to produce in a given period, and on which they are reasonably covered in raw wool and yarns. This means, generally speaking, the putting of the new season's merchandise on the goods market on an allotment basis and with well settled price ideas.

The major demand favoring the finer grade qualities has made an unusual situation in the low-end market. Special activities in the low-ends might have been greater this week if the trade were reconciled to these values, but steady rejections of samples made for advance views taught selling agents generally to expect little business on lower-priced merchandise as long as the costs in the cutting-up trade practically prohibit the utilization of such fabrics. Numerous clothiers repeatedly point out that the differences in cloth cost are not sufficient to make a garment below a first-rate production cheap enough to make it attractive to a suit or overcoat buyer in the retail trade.

Buyers and sellers put in the most of this week testing out the market in various ways. It is predicted by a prominent seller that a sharp and quick acceptance of such goods as are shown will be the rule and that an upward turn in the price of wool and yarn will follow. "To a certain extent wools were asphyxiated by Government control," it was said, "and this will be the season that will apply the pulmotor to them." There is small idea that there is any likelihood of the market going out of hand. Certain minor lines hit up a lively clip in the early part of the week, among which a prominent line of knitted overcoatings was sold up and withdrawn in less than a day.

The price situation is notable rather for its firmness than for spectacular features. Without exception there continues an upward tendency in prices. Naturally the highest advances are looked for in worsted suitings, and opinion is rather frequently encountered that when the market gets in full swing a general rush will be made for worsteds regardless of other values. The relative chance of carded woolens does not seem to be greatly improved by their better position for production, in a rather widespread opinion, although the warm reception accorded to such lines as have appeared in advance of the general openings is sufficient evidence that carded woolens are not going to falter or fall behind to any great extent.

Complaints were heard among sellers of overcoatings of delays in mail and express shipments of samples from the mills, and lines that made their appearance after the middle of the week were two to four days behind time on this account. Balmaccans, plaidbacks and strong colors predominate in preliminary showings. Accumulations owing to stagnation in the cutting season are talked of to a certain extent, but buyers are taking on readily of the new goods.

Men's Wear Trade Notes

The probable holding over of staples becomes a matter of considerable discussion in the present men's wear situation, in view of the sharp rise and the amount of goods still undelivered in lightweight orders.

Rumors are heard of drastic cuts that may be made on spring merchandise, in some instances a cutting down of 50 per cent. on the yardages undelivered being mentioned.

The heavyweight lines are spoken of frequently as sold up before opening, and clothiers in the market this week are turning homeward, to be visited about February 15 by salesmen.

Stoney & Starkey opened a line of French-back trouserings, 16 oz., at $3 per yard.

The Western Knitting Mills on Tuesday withdrew their lines of heather mixtures and fancyback knit overcoatings opened on the previous day. The prices range as follows: 26 oz., $4.50 per yard net; 30 oz., $5.00 per yard net; 16 oz., $3.25 per yard net.

Of the serge openings of the week there is little to be said further than that they came up to advance estimates of the price situation in every particular.

Metcalf Bros. & Co. announced lines of Wanskuck serges open on allotment on Tuesday for the Fall 1920 season. The following table gives prices on the leading ranges:

No.	Fall 1920.	Fall 1919.	Fall 1917.
354–12	$6.00	$3.50	$2.25
386–14	6.10	3.50	2.35
386–16	6.80	3.85	2.70
349–12	4.90	2.85	2.00
366–12	5.90	3.15	...
333	5.50	3.05	...
350	5.45	3.65	...
308–18	8.25	4.50	...

Not showing 650, $6.00, and silks, $8.95 per yard. The blacks are sold at 10 cents per yard off the blue list given above. Overcoatings 24 to 30 oz. opened at $3.15 to $7.15 a yard, noting a rise of 95 cents to $2 a range over last year.

George E. Kunhardt & Co., are showing overcoating lines priced from $4.25 to $5.50; lightweight ranges $4.25.

SURPLUS TEXTILE AWARDS

Awards on Textile List No. 12 Opened on Jan. 19

Awards have just been announced by the Director of Sales, Surplus Property Division, Office of the Quartermaster General of the Army, on items listed on Textile List No. 12 bids for which were opened on January 19, as follows:

Lot 569: No bid.

Lot 570: 6,199 yards of gray convalescent cloth. All Russian Central Union of Consumers' Society, entire lot at $1.55.

Lot 571: 20,152 yards of gray convalescent cloth. All Russian Central Union of Consumers' Society, entire lot at $1.55.

Lot 572: 7,958 yards of gray convalescent cloth. Surplus Trading Co., entire lot at $1.5755.

Lot 573: 3,071 yards of gray convalescent cloth. All Russian Central Union of Consumers' Society, entire lot at $1.50.

Lot 574: 3,690 yards of gray convalescent cloth. All Russian Central Union of Consumers' Society, entire lot at $1.55.

Lot 575: 4,663 yards of gray drilling, 53 inch 68 x 42. Riverdale Manufacturing Co., entire lot at $.785.

Lot 576: 7,979 yards of gray drilling, 53 inch. Claremont Textile Co., entire lot at $.7623.

Lot 577: 11,604 yards of gray drilling, 53 inch, 68 x 42. Claremont Textile Co., entire lot at 2.7680.

Lot 579: 98,243 yards olive drab duck, 22½ inch, 28 x 20. B. F. Bailey & Sons, 4,200 yards at $.53.

Lot 580. 367 yards of gray duck, 22 inch, 28 x 17. B. F. Bailey & Sons, entire lot at $.56.

Lot 581: 21,294 yards of gray duck, 26½ in, 40 x 32. H. D. Taylor Co., 2,000 yards at $.42.

Lot 602: 12,104 yards olive drab melton, 56 inch, 16 oz., (worsted wool, piece dye). Surplus Trading Co., entire lot at $2.3255.

Lot 603: 253 yards olive drab melton, 56 inch, 16 oz. Surplus Trading Co., entire lot at $2.0005.

Lot 604: 100 yards of olive drab melton, 54 inch, 16 oz. S. Forman, entire lot at $2.00.

Lot 606: 708,022 yards of brown osnaburg, 28 inch, 44 x 28. Hain Bros., entire lot at $.40.

Lot 607: 20,563 yards of brown osnaburg, 26 inch, 44 x 28. J. Richmond & Co., entire lot at $.2158.

Lot 608: 7,098 yards of olive drab shirting flannel, 36 to 38 inches, 68 x 64. Charles D. Stone & Co., 3,098 yards at $.90; Guiterman Bros., 3,500 yards at $.90, and Gruhn Bros., 500 yards at $.90.

Lot 610: 3,900 yards olive drab shirting flannel, 54 to 56 inch, 72 x 68. Guiterman Bros., 3,400 yards at $1.25; Gruhn Bros., 500 yards at $1.25.

Lot 611: 37,994 yards of olive drab shirting flannel, 56 to 58 inch, 74 x 60. E. Schwartz, 15,000 yards at $1.35, and 22,994 yards at $1.32½.

Lot 612: 76 yards of olive drab shirting flannel, 58 to 60 inch, 68 x 64. Gruhn Bros., entire lot at $1.25.

Lot 613: 2,046 yards of khaki shirting flannel, 56 to 58 inch, 44 x 28. M. A. Sulkowitch, 500 yards at $1.20.

Lot 614: 125 yards khaki shirting flannel, 58 to 60 inch, 44 x 28. M. A. Sulkowitch, entire lot at $1.20.

Lot 615: 6,280 yards of olive drab shirting flannel, 33 inch, 7.1 oz. Max Hyman & Son, 5,780 yards at $1.00; Gruhn Bros., 500 yards at $1.

Lot 617: 279 yards of olive drab shirting flannel, 50 to 52 inches, 68 x 64. Gruhn Bros., entire lot at $1.25.

Lot 618: 80,000 yards of olive drab webbing, 1 inch. H. R. Sullivan, 500 yards at $.0375. Bids on balance of lot rejected.

Lot 619: 704,800 yards of olive drab webbing, 1¼ inch. H. D. Taylor Co., 5,000 yards at $.02; Universal Trading Co., 699,300 yards at $.01997; H. R. Sullivan, 500 yards at $.04.

COTTON YARNS.

Lot 623: 15,682 lbs. of olive drab cotton yarn, 3-12s. Philadelphia Blanket Co., 1,500 lbs. at $.70; Clarke Bros. Manufacturing Co., 10,000 lbs. at $.51½; Hyde, Rakestraw Co., 4,682 lbs. at $.50.

Lot 624: 3,176 lbs. of olive drab cotton yarn, 5-10s on tubes. J. Clarke Bros. Manufacturing Co., 1,600 lbs. at $.51; Bristol Carpet Mills, 1,576 lbs. at $.51.

Lot 615: 4,958 lbs. of cotton yarn, 26s on cones, carded. Dion Duropolis, 6,000 lbs. at $.755.

Lot 626: 16,353 lbs. of cotton yarn, 26s on cones, carded. Dion Duropolis, 6,000 lbs. at $.75¾; 6,000 lbs. at $.7525, and 4,353 lbs. at $.75¼.

Lot 628: 3,301 lbs. olive drab cotton yarns, 3-12s on skeins. Samson Cordage Works, entire lot at $.60.

Lot 629: 319 lbs. of olive drab cotton yarns, 5-9s on tubes. Hyde Rakestraw Co., entire lot at $.50.

WORSTED YARNS.

Lot 630: 575 lbs. of gray worsted yarns, 2-10s. A. A. Marks, entire lot at $1.60.

Lot 632: 276 lbs. of gray worsted yarns, 30s, on cones. Universal Trading Co., entire lot at $.7521.

Lot 633: 1,076 lbs. of gray worsted yarns, 2-6½s (skein, 5s). M. M. Frankel & Son, 500 lbs. at $1.98.

Lot 634: 1,040 lbs. of silver mixed worsted yarns, 27s on cops. Rottenberg Sons Co., 540 lbs. at $2.50; Frederick Barlow, 500 lbs. at $2.50.

Lot 635: 12,953 lbs. gray worsted yarns, 2-10s (skeins, 5s). Slosberg Knitting Co., 1,000 lbs. at $1.65.

Lot 636: 754 lbs. gray worsted yarns, 2-10s; all bids rejected.

Fourteenth Textile Offering

The Zone Zupply Officer, Surplus Property Division, 461 Eighth avenue, New York, announces List No. 14, of surplus textiles, bids on which will be received at that office up to 3 P.M., Monday, Feb. 2. The new list includes duck, jeans, osnaburg, sheeting, rubberized sateen, jerkin lining, melton and flannel shirting.

IMPORTANT CHANGES FEW IN DRESS GOODS

Better Progress Made in Fine Goods Section—General Demand Seems to Be Looking Up

The dress goods situation remains the same this week, as it has been for some time past, the element of uncertainty therein being large or small, according to viewpoint. Prominent sellers are optimistic in regard to a big fall season, as demand holds strong notwithstanding that developments in the cloak and suit trade are not of a kind to give the fullest measure of satisfaction.

A tendency to postpone fall operations coincides with an award of increased wages to local operatives by the State Commission. It is held that this development alone is not inclined to send the market out of hand. Other unsettlement factors crop up at this time also, but so far as they affect the analysis of the wool goods market, they seem to add to, rather than detract from, its basic selling strength. Attention of the dress manufacturer turns eventually to wool goods, and the demand in gabardines and tricotines, as well as novelty goods, is again looking up.

FINE GOODS COVERED

Much lethargy has been dispelled from the fine goods end of the market by the recent sales of Australian wools. Manufacturers who took on their stock from the auction at the heights which are now well-known throughout the trade were not previously in shape to get out their samples and entertain the forward desires of the cloak and suit trade. The coverings made are not complete in any respect, and it is said on good authority that there is such an absolute dearth of cashmere that cashmeres will have to come from Europe or there will be none in this market for fall.

NOVELTIES IN DEMAND

The novelty end of the market holds out such interesting possibilities that a number of ventures are heard of in which developments will be, in time, exceptionally interesting. One of these has to do with plaid rugs that will cut up into two sport coats. For some time exceptional interest has been shown, by those with initiative, in the trade in this class of goods. The trend to sporting fabrics is the single outstanding feature of recent special demand and selling agents are not far wrong in counting upon large returns in this field.

LOWNESS OF SERGE PRICES

Staple dress goods have already gotten off to a good start, while the coating end of the trade has been unduly held back. If reports are to be believed corporation goods and serges started out below prevalent prices ideas, giving really a better statistical situation than an actual one. It would be all right to give this development the credit of being a brake on the market, if a full production could be assured. Otherwise it has little more of a permanent influence than the snowfall of last Sunday.

The novelty field has, apparently, been given a special attractiveness by the evident tendency with producers to concentrate cloaking fabrics to a few sorts, rather than attempt another season of wide variety. The cloak and suit trade, it is understood, in the face of current conditions is much more hesitant than the clothier is in the men's wear market. Higher levels are logical and un-

Loose Shafts Cause the Failure of Many Wood Rolls

Does This Trouble Prevail in Your Plant?

Rodney Hunt "*Roll Turnings*," Our Monthly Publication in the current issue gives a full report of the reasons for Loose Shaft trouble as found in our investigation made among 2,000 large roll users.

Rodney Hunt "Roll Turnings" is not only reporting causes for roll failures, but in each issue gives concrete suggestions for overcoming the particular reason for failure discussed. You will want the entire series for the suggestions they contain will mean a considerable saving to you on your roll equipment.

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For woven, knit, pile and felt fabrics in the string.

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¶ Sixty-eight years of successful manufacturing in any line is a pretty good assurance of a meritorious product.

¶ Since 1849 we have been manufacturing mill and machine brushes for every textile requirement.

¶ And this record is but the foundation upon which we plan to build an even more successful future

¶ But doesn't it warrant your investigating right now the reason for this long continued and constantly increasing popularity of Mason Brushes?

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Tentering and Drying Machines

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SARGENT WOOL WASHING MACHINE

This new model is associated with the production of America's finest wool fabrics

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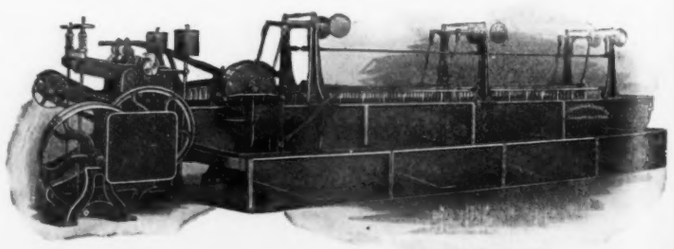

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avoidable, but a general buying movement is practically a certainty once the samples are ready and the prices are made.

Dress Goods Trade Notes

Fine cashmeres are so utterly lacking that it is reliably said cashmeres must come from abroad or there will be none in this market this fall.

Imported fabrics are more plentiful, concerning which buyers comment that they help out very little, the prices plus duty being to no material advantage.

A. D. Juilliard & Co. showed a line of serges at $3 net a yard.

Selling agents expect their coating samples to be brought through more promptly, now that their fine wools were obtained at the recent auctions.

MISBRANDING REGULATIONS

Referendum on Misbranding Submitted to Knit Goods Manufacturers

A letter of inquiry has been submitted to the members of the National Association of Hosiery and Underwear Manufacturers, asking for their views upon the proposed regulations to prevent misbranding. These regulations are now under consideration by the Federal Trade Commission and they are stated to be anxious to have the opinion of the industry. The replies to this letter, expressing the opinion of the membership of the Association, will be presented to the Federal Trade Commission.

This order proposed to the Federal Trade Commission on Jan. 13, 1920, is as follows:

You are hereby ordered to cease and desist from employing or using on brands or stamps or tickets attached to any underwear, stockings, sweaters or other knitted goods made or sold by you, or on the labels of the boxes or bundles containing them—

(1) the words "Wool," "Natural Wool," "Australian Wool," "Saxony Wool," "Lamb's Wool," "Worsted," or any similar descriptive term, *unless* the knitted fabric is made entirely of all wool yarn of the grade named, or

(2) the words "Cashmere," "Woolen," "Merino" or "Worsted-Merino," *unless* followed by the words, "Wool and Cotton," or

(3) the words "Wool Process" or "Wool Spun," *unless* the words "Cotton" or "Cotton and Wool," as the fact may be, are equally prominent, or

(4) the name of a material such as silk, camel hair or angora, *unless* followed by the name of any other staples contained in the knitted fabric, or

(5) the word silk when artificial silk or mercerized cotton should be named, or

(6) the words "French Balbriggan," "Swiss Ribbed," or any other names incorrectly suggesting place of origin, such as the word "Egyptian" (unless printed Egyptian Color) on fabrics knitted from American Cotton.

This matter will also be discussed at the meeting of the Schuylkill Valley knit goods manufacturers, which will be held Saturday, February 14, at the Wyomissing Club, Reading, Pa.

Convention Date Changed

The date of the open convention of the Material Handling Machinery Manufacturers' Association, which was announced for January 29 and 30 has been changed to February 26 and 27. The convention will be held at the Waldorf-Astoria Hotel, New York.

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The "LOWELL," the acknowledged leader of mill crayons, is made by experienced mill men—men who know the needs of textile mills. For all uses in COTTON, WOOLEN and WORSTED mills the "LOWELL" Crayon is unequalled.
They are just soft enough to mark the finest materials without injury and yet hard enough to wear well. 15 colors and white. Contain no oil or grease.
LEAVE NO STAINS AFTER BLEACHING
Write for color card and prices
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COTTON MANUFACTURES

SMALL EXPORT STOCKS, BUT DEMAND CONTINUES

The Scarcity of Merchandise and Goods Withdrawn Feature a Very Difficult Market in Cotton Goods

The market is almost bare of printed goods, fancies and novelties for export. The largest distributors have reached a point where only sales from stock are possible. Manufacturers of goods of this class, low and medium priced goods in particular, report none to offer before August, and neither buyer nor seller is disposed to go beyond August. The inquiry is still in evidence, and the promptness with which stock lines are accepted indicates bare shelves in not a few South and Central American houses. An easier business is possible with Cuba, Porto Rico and the Philippines and markets that consume larger quantities of staple gray and bleached goods. As an alternative certain export houses are buying the gray goods and having them printed and finished to order in spite of the fact that it is a slow process.

BUYERS IN THE MARKET

As was foreseen in the rush period of last year, export business is falling off, not for lack of demand but for want of goods. The increased cost of converting must be felt in new business while the cost of stock goods remains for the present at former levels. The presence of a larger than usual number of representatives of foreign importers from the Americas and elsewhere is significant, and the thoroughness with which they are shopping first hands demonstrates their many requirements. It is unfortunate that things should be as they are, but, unless production can be speeded up, matters must be worse rather than better in the near future. Reports state that printers are endeavoring to arrange for greater production by double shifts and night work and the employment of extra help as soon as they can make permanent arrangements with working forces to introduce their program without discord. Converters and finishers are determined to increase their output if possible.

TROUBLE WITH EXCHANGE

Factors in the West Indian trade say there is little comfort to be derived from the present state of exchange, which is prejudicial to the export of American cotton goods to Jamaica. It is stated that the Jamaican Government is considering a proposal to grant preference to English goods in imports, and that orders that might be placed here are being withheld. Under other conditions this would be of more consequence, but under the existing state of affairs, wherein the buyer's anxiety exceeds the seller's, this proposed preference is taken less seriously. No doubt certain South American markets might have fared better had they understood more fully the exact state of affairs in our domestic market. But conditions have been so abnormal that they were hardly understood by those in direct daily touch with them. An intense shortage of goods was impending and discussed months ago. It is true business has been going strong, and not much more for export could have been done, but there is always a way to do more if the matter were taken up in time.

Large export concerns, and important commission house departments that are looking forward to this business in a larger way are going ahead with developments toward trade with the Levant. Their representatives are on the ground and are making a close study of conditions. When the time arrives there will be no lack of energy and capital to develop business. The intention is to assign a liberal proportion of production to accommodate the markets according to their capacity for absorbing American textiles as well as the kinds and qualities best adapted to the trade. Business has already been carried on through the medium of Greek importers, but the possibilities have not been scratched as yet. There are powerful factors back of a movement to develop the Near Eastern trade to whom the preliminary labors of developing this or any other market are secondary when the principal thing in view is opening a country for the introduction of American goods.

Export Trade Notes

Thomas F. Hetherman has severed his connection with Neuss Hesslein & Co., Inc., joining on January 1 with Robin & DeLaurant of 487 Broadway, under the firm name of Hetherman & Co., Inc. The company is engaged as brokers specializing in Far Eastern produce. Mr. Hetherman's previous connections were with Charles Pfizer & Co., Dill-Crosett, Inc., and Dodwell & Co., Ltd., extending over a period of 15 years.

PLAN WORLD TOUR

Ship to Be Equipped to Take British Factors to Various Markets

WASHINGTON, D. C., Jan. 30.—British textile interests are proposing an investigation of commercial possibilities along the trade routes and particularly in China, according to Trade Commissioner L. B. Gary at London, and the British Government will be asked by the Lancashire cotton interests to get substantial assistance towards arranging and equipping a ship in which manufacturers, merchants and operatives may visit the world markets where the production of British looms have had a wide sale. In making his report to the Department of Commerce Mr. Gary says:

"This suggestion originated some time back, and the proposal is the outcome of a suggestion from the head of the British consular service in China, who reported that the Chinese Empire loans could readily absorb all of the cotton goods the Lancashire district is able to export.

"It is believed that such a tour would be interesting and highly profitable. Many of the leaders in the Lancashire district had felt for some time that such a tour was necessary for Great Britain to further extend her foreign trade.

"While the Government is to be asked to afford support for this proposal, even should the Government fail to give the support asked for, it is almost certain that the tour will be made. The Lancashire interests undertook the responsibility unaided."

READING, PA. The Schuylkill Hosiery Mills, Inc., has filed notice with the Secretary of State of an increase in its capitalization from $50,000 to $150,000, for general business expansion.

LESS MARKET ACTIVITY; FIRST HANDS WAITING

Second Hands Are Liquidated Quite Largely—First Hand Business Subject to Mill Confirmation

Not so active for the first half of the week, even quieter than it was a week ago. More southern buyers in the market whose interest centers largely in ginghams. Western buyers who were here last week looking for flannels have gone home. Gingham prices were made this week but the production, as previously understood, was a matter of figuring allotments and not one of selling the goods. Not at all satisfactory to anybody but necessary under the circumstances. The upshot of the matter is that concerns that are not on last year's records will fare badly this year. It is doubtful if any buyer, large or small, will secure one half the usual quantities and confirmations, in some cases, may not exceed 40 per cent. Distributers are disappointed because they are obliged to disappoint their customers. The whole situation is disagreeable as well as unsatisfactory.

First hands were not free sellers. Second hands were releasing considerable quantities of goods at the market or a little below the top levels. This is a natural reaction that follows a relaxation on the part of first hands. When commission houses are active sellers speculators are unconcerned, but when the contrary is the case second hands start something, and that seems to be the drift at present. Selling agents are satisfied to see speculators loosen up; it is good for business and influences the first-hand market little if at all. This market is not easily disturbed just now. Men may talk about the element of risk but they concentrate on the strength of existing conditions just the same.

Buyers would buy voiles at any figure, even at fancy prices, but have trouble in finding them. Print cloths were not easy to buy even in narrow counts which have been well thought of by the speculative trade since the Government disposed of its surplus. The trade occupies a peculiar position with regard to the buyer who plunges for a profit on resales. He is outlawed as a moonshiner when the trade is washing its linen in public, but he has good friends in private or else he couldn't repeat again and again as he continues to do. The persistent speculator is a knowing individual. More than a few are large operators in the cotton goods market and some would expand their activities to cover several lines of colored goods, if they could escape the close scrutiny of the protective policy of allotment, which in spite of its unpleasant features is a guarantee against loose speculation.

An element of confidence comes of the assurance that the trade is concentrating on the abnormal market problems that concern to-day and to-morrow. That it acknowledges an element of risk is not an evident of weakness but a witness to the seriousness of a situation which must be handled with courage as well as caution. There is not much danger of the cotton goods market cracking of its own weight, as its record proves, but there is always a possibility of outside complications that relate to all business. This market is fundamentally strong, but it could be made top heavy. An enormous buying has been done by constructive trades that are as strong or stronger than the cotton goods market itself and more concentrated. Business with these trades is business indeed, unshakable and unbreakable so far as business foresight and commercial stability can make them.

The man of business is taught some unforgetable things. He goes far who goes straight—he is wise who keeps this before his eyes these days. It is not unfair to force the highest bid, but is it wise? The market is hardly the place to look for fine shades of morality, but in no place is a balanced sense of fair play better appreciated. The cards are running against the buyer but he continues to take a hand in the game for the reason that "Needs must when the devil drives."

Comparative Quotations

	Jan. 27.	Last year.
Spot Cotton, N. Y.....	39.05	27.95
Print cloths:		
27 -in., 64x60, 7.60 yd.	15–16c.	8¼c.
38½-in., 64x60, 5.35 yd.	late-22c.	11½c.
39 -in., 68x72, 4.75 yd.	25c.	14½c.
39 -in., 72x76, 4.25 yd.	27c.	16c.
Brown sheeting:		
36-in., 56x60, 4 yd.....	26c.	15c.
36-in., 48x48, 3 yd.....	28½c.	18c..
36-in., 48x48, 4 yd.....	25–26c.	14c.
Tobacco cloths:		
36-in., 48x44, 7.75 yd..	16c.	
36-in., 40x40, 9.20 yd..	13¼c.	
Drills, 37-in., 3 yd.....	30c.	18c.
Denims, 2-20s (Indigo)..	47½–50c.	35c.
Tickings, 8-oz.	55c.	34c.
Standard Prints	21c.	19¼c.
Standard Staple Gingham	27½c.	17½c.

Cotton Goods Trade Notes

Bonnie Lassie dress ginghams priced at 32½ cents; delivery June to November. William Iselin & Co., cotton goods department.

Amory, Browne & Co. have priced Red Rose of Lancaster, 34 cents; Toil du Nord, 37½ cents; Imperial Chambray, 42½ cents; Lancaster Staples, 26¼ cents. Deliveries, May to September 1; 2-10-60 at mill.

Appleweb dress ginghams sold to October 1, and withdrawn by Catlin & Co.

The Hunter Manufacturing & Commission Company opened Elsee 27-inch outings for fall 31½ cents net.

The new location of H. B. Glover is on the twelfth floor of the Cuyler Building, 120 West 32d street. Showing flannelettes for fall.

B. B. & R. Knight, selling agents, named a price of 37½ cents on 4/4 Fruit of the Loom—net 30 days. Subject to further advance without notice. Orders taken at value only.

Cone Export & Commission Co. have priced Haynes staple ginghams at 23½ cents and Cliffside ginghams at 22 cents for delivery in April, May and June.

Cone Export & Commission Co. named prices on solid colored flannels and Canton flannels, deliveries April to September. Mineola fancy flannels were priced and deliveries are May to September, inclusive. Allotments to regular customers.

Amory, Browne & Co priced at value orders on Lancaster staple ginghams at 26½ cents. Allotments have been made on new business from September to October.

Catlin & Co. have priced solid color flannels: Apple Ward at 30c.; Sultana, 29½c.; Twill Down, 28½c.; Wren, 26c.; Lark, 25c. All lights; dark grays a9

THE RIDDLE COMPANY

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COTTON YARNS

Cones—Skeins—Tubes—Warps

SELLING AGENTS

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MERCERIZED YARNS

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Spinners, Mercerizers and Bleachers of High Grade Combed Yarns

MAIN OFFICE, FACTORY and WAREHOUSE:
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PHILADELPHIA, PA.

SPINNING MILL:
LINCOLNTON, N. C.

"From the Cotton Field Direct to You"

light. No dark prices made. Delivery to September 30.

A broker traced one lot of gray goods through nine transactions that passed twice through the hands of the original buyer. Another was bought and sold four different times by one operator.

Second hands are holding for the top on certain market favorites while shading some others slightly. 64 x 60s for February were sold on Wednesday at 22¼. 27 cents was offered for 72 x 76s after 26½ was refused.

KNIT GOODS IN CHINA

Commercial Attache Describes Possibilities for American Goods

The possibilities for the introduction of hosiery and underwear of American make in China and the lines most used in that country are described in the Jan. 26 issue of Commerce Reports by Acting Commercial Attache L. W. Merkins of Peking. His report in part is as follows:

"The Chinese middle class wear cheap cotton underwear of very light weight in summer, and a somewhat heavier grade, sometimes mixed with wool, in winter. The summer shirts have half sleeves and the drawers are knee length; athletic underwear commonly used in the United States is worn to some extent by the student class. In winter full sleeve shirts and full-length drawers are generally worn. Some grades of winter undershirts have two or more pockets. Silk and woolen undergarments find a sale among the foreign residents.

"Japanese goods vary in retail price from $0.80 Mexican to $2 a suit, and garments made locally range a little higher, to about $2.50 a suit. Winter weights are priced up to $5 a suit.

"For the most part, the Chinese are shorter in stature and more slender in build than the Occidental races, so that smaller sizes are required for this market. Natural colors are desirable.

"Sweaters and sweater coats are increasing in popularity among the student class, but there is little likelihood of their extensive sale in other quarters, excepting among the foreign population.

"The market for hosiery is confined chiefly to cotton socks, worn by both men and women, although in some cases women prefer stockings of cotton or silk. Japanese and local goods are sold at very low prices, the highest being about 35c. Mexican per pair for cotton lisle socks of cheap to medium grade, which sell for from 20c. to 35c. in the United States.

"The statistics issued by the Chinese maritime customs do not classify underwear and knit goods separately, these items being included under the heading, 'Clothing, hats, etc.' Imports of this class into China in 1917 and 1918 are shown in the following table:

Sources of imports..	1917. Haikwan taels.*	1918. Haikwan taels.*
Japan (incldg. Formosa)	3,424,729	3,768,344
Hong Kong	1,055,770	1,021,620
Great Britain	270,630	339,806
United States	78,002	129,844
Macao	61,183	74,255
Korea	49,263	71,403
All other countries	214,163	141,361
Total direct gross imp.	5,091,716	5,411,833
Re-exports	733,967	378,358
Total net imports	4,357,749	5,033,475

* In 1917 the Haikwan tael was equivalent to $1.03 United States gold; in 1918, $1.26.

"According to foreign commerce and navigation of the United States, the exports of cotton underwear from the United States to China during the fiscal year ended June 30, 1918, were valued at

ALBERT A. LANE

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The Macrodi
FIBRE HEAD WARP SPOOL

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These motors are absolutely dependable; have high efficiency, low maintenance cost; ideal performance characteristics and economical price. We urge you to investigate if you are seeking the best motor value the market affords.

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$16,043, and shipments of all other knit goods, excluding hosiery, at $3,337.

"The Chinese maritime customs statistics show the following imports of hosiery into China in 1917 and 1918:

	1917	
Sources of imports—	Quantity. dozens.	Value. Haikwan taels.*
Hong Kong	1,032,448	1,098,323
Japan (incldg. Formosa)	1,675,608	1,848,754
United States	11,744	29,252
Great Britain	10,320	37,821
All other countries	44,225	43,852
Total direct gross imp.	2,774,345	3,058,002
Re-exports	229,402	361,334
Total net imports	2,544,943	2,696,668

	1918	
Sources of imports—	Quantity. dozens.	Value. Haikwan taels.*
Hong Kong	1,055,770	1,021,629
Japan (incldg. Formosa)	864,679	842,286
United States	18,805	36,835
Great Britain	7,047	29,637
All other countries	22,262	29,241
Total direct gross imp.	1,968,563	1,959,619
Re-exports	55,562	87,498
Total net imports	1,913,001	1,872,121

* In 1917 the Haikwan tael was equivalent to $1.03 United States gold; in 1918, $1.26.

"The manufacture of underwear and hosiery is a growing industry in China. Canton, Shanghai, Hankow, Swatow, Chungking, Peking, Tientsin, Harbin and other cities are producing these articles in factories that are mostly small and poorly supplied with machinery. The Pioneer Knitting Mill in Shanghai is a modern establishment equipped to knit both cotton and silk hosiery. When all the American machinery ordered has been received, this will be the largest hosiery mill in China, with a daily output of 1,000 dozen. Its products are not only sold locally but exported to other parts of the Far East. The Li Kiang Knitting Factory in Swatow, using machinery operated by steam, had an output of 54,000 dozen pairs of socks in 1917. The manufacture of ribbed underwear in Swatow has materially reduced the sale of cheaper goods imported from Great Britain and Japan.

"A method of introducing new lines that has been generally overlooked in China is to work through the native chambers of commerce. The merits of a product are discussed by the members, and if it is believed suitable for the local markets practically every merchant concerned will be likely to hear about it. After arranging for agencies in China, American exporters would do well to send their representatives samples for distribution to the Chinese chambers of commerce in the larger business centers.

"The introduction of new goods will be successful in the proportion that the manufacturer recognizes and meets the elementary problems. In the first place, trade is governed by the continually fluctuating exchange rates between China and other countries, between various big cities in China, between the 'big-money' currency and the 'small-money.' No matter how low his stock, a merchant refuses to buy if exchange is unfavorable, but if it is favorable he can often be induced to place orders regardless of the quantity of goods on his shelves. Exchange has been in favor of imports into China for many months and is very likely to continue so for an indefinite period."

WOODSTOCK, ONT. The Harvey Knitting Co. has let contracts for building an addition to their textile plant to W. J. Dayton, brick and masonry; Davison & McInnes, electrical work; McKinney Lumber Co., carpentry.

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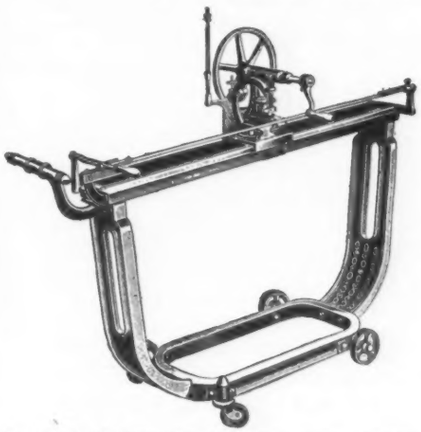
on wet or dry, thick or thin goods



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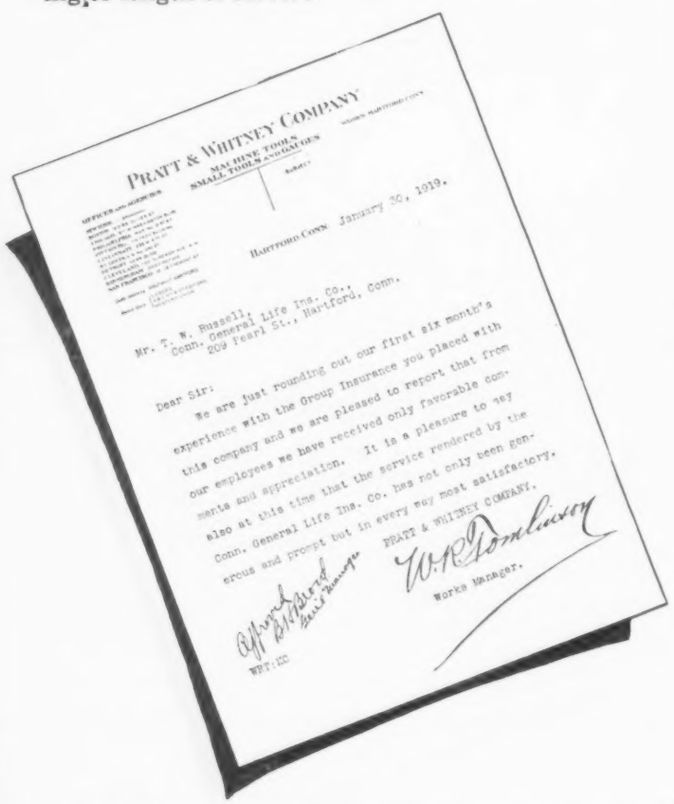

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FINANCIAL MARKETS

STRENGTH IN TEXTILES

Small Offerings Help the Advancing Tendency

BOSTON, Jan. 28.—Further radical advances have been scored by textile mill shares, and the upward movement is materially aided by the small offerings and the active demand. There is ample evidence that the majority of holders of textile securities are sitting tight, and are not only well satisfied with present earnings and stock values, but are confident that the first half of this year will show such a marked increase in earnings that very much higher stock values will be warranted. Of course, increased earnings are being discounted by the advance in stock values, but it is safe to assert that this has not progressed far enough in the case of most of the high-grade textile shares.

The most active of the listed stocks since last report have been American Woolen and International Cotton Mills common shares, the former advancing 10¼ points to 158¾, and the latter 3 points to 74; it is understood that there is a considerable unfilled demand for International common, and it will not be surprising if materially higher prices are touched by this stock in the near future. The renewed activity in American Woolen common has not been reflected in the preferred, which remains unchanged at 105¼. Amoskeag has advanced 1 point within the week to 146, the preferred remaining unchanged at 81. Pacific has declined 1½ points to 172.

At the local auction sales to-day new high records were touched by shares of several Fall River and New Bedford mills, and also by Everett, Massachusetts and Great Falls. Everett sold up to 220, an advance of 28 points; Massachusetts to 160⅜, an advance of 16⅜ points; and Great Falls to 229, an advance of 14 points. Some idea of the marked change that has taken place in share values during the past year is shown by the following sales, which compare with prices in 1918: Davis Mills 276, an advance of 146 points; Weetamoe 195½, an advance of 63 points; Grinnell 225 an advance of 78 points; City Manufacturing 226½, an advance of 79½ points.

ARLINGTON MILLS STATEMENT

The comparative statement of the Arlington Mills, which was made public at the annual meeting this week, shows a marked decrease in sales as compared with each of the last three years, this being due to the fact that in 1917 and 1918 the company operated a large number of outside mills for Government account, the 1919 sales being confined to Arlington products, and being considerably restricted by the Lawrence strike early in the year. The sales accounts for the last three years are as follows: 1919, $27,368,000; 1918, $48,476,355; 1917, $31,251,636. Comparative statements of assets and liabilities for the last four years are as follows:

ASSETS.

	1919.	1918.	1917.	1916.
Real estate	$7,541,989	$6,775,671	$1,664,076	$2,074,860
Machinery			4,235,317	4,485,225
Cash and debts receivable	4,638,563	5,477,743	7,804,957	4,248,240
Merchandise, materials, stock in proc.	14,197,071	12,635,946	10,182,647	8,473,995
Prepaid accounts	250,513	251,581	201,522	160,227
Wool in hands of bankers	.....	.....	3,636,862	2,117,147
Accept against wool	.....	.....	3,636,862	2,117,147
Liberty bonds	.....	1,830,000	330,000	.....
Total	$26,628,136	$26,970,943	$24,418,521	$19,442,549

LIABILITIES.

Capital stock	$8,000,000	$8,000,000	$8,000,000	$8,000,000
Notes and accounts payable	7,109,816	6,127,581	9,024,084	8,292,388
Reserve for doubtful accounts	73,479		46,796	56,129
Reserve for depreciation	905,369	6,357,589	386,989	286,962
Reserve for taxes	1,200,000		1,000,000	.....
Liberty bond subscription	.....	.....	264,000	.....
Surplus	9,339,472	6,485,772	5,696,650	2,807,068
Total	$26,628,136	$26,970,943	$24,418,521	$19,442,549

BOSTON STOCK AUCTIONS

The following sales of textile shares were made at Wednesday's auctions:

Shrs.	Mill.	Par.	Price.
1	Great Falls	100	229
63	Ludlow	100	152½
9	Nashua	100	260¼
30	Winnsboro pfd.	100	101⅝
11	Everett	100	220
10	U. S. Worsted 1st Pfd.	100	81¾
10	U. S. Worsted 2nd Pfd.	100	83¼
1	Weetamoe	100	195½
30	Naumkeag	100	240
2	Davis	100	276
5	Grinnell	100	225
10	City Mfg.	100	226½

DIVIDENDS DECLARED.

Mills.	Rate, %	Period.	Payable.	Stock of Record.
Katama	2	Q	Feb. 1	Jan. 20, 1920
Harmony Pfd.	1¾	Q	Feb. 2	Jan. 26, 1920
*L'dlow Asso'te	1½	Q	Mar. 1	Feb. 2, 1920
Greylock	2	Q	Feb. 2	Jan. 20, 1920
Lancaster pfd.	1¾	Q	Feb. 2	Jan. 26, 1920
Amoskeag pfd.	2½	Q	Feb. 2	Jan. 2, 1920
†Manomet	2	Q	Feb. 3	Jan. 27, 1920
Pacific	3	Q	Feb. 2	Jan. 19, 1920
Boston Mfg. Co.	4	S. A.	Feb. 2	Jan. 27, 1920
†Nonquit	2	Q	Feb. 3	Jan. 27, 1920
†Nashawena	2	Q	Feb. 3	Jan. 27, 1920

* Special Dividend 1%.
† Special Dividend 2%.

Fall River Mill Shares

FALL RIVER, Mass., Jan. 29.—Boston bears and local bulls have had a clash in the market for textile securities. At least four houses in Boston have taken up Fall River investments. That fact seems to have stimulated local interests, with the result that a disposition is evinced in the capital city to discredit quotations. It is recognized there that on the basis of dividends most of the figures given out are equitable; but when they are asked to accept a jump of 50 points without real justification, the Boston handlers refuse to be stampeded. That is why they decline to quote 275 for Narragansett. The Manasset Manufacturing Co. no longer is trying to acquire the plant, having invested in a Lowell property formerly given over to the production of carpets. Nothing is stated about another effort to obtain control. The directors have expressed appreciation of the response of stockholders to their appeal for confidence in their management by clearing a quarterly dividend of 10 per cent. It is not the unprecedented figure which served as the foundation for the extraordinary rise. Theorizing then resolved itself into the conclusion that advantage was taken of the stock scarcity and the tremendous current sweeping the market to bring about a psychological movement in Narragansett. Boston yielded 30 points somewhat grudgingly. The concession, added to the 10 per cent. dividend, brought the price of the stock to 265; ex-dividend, however, it has not been possible to get out of town dealers to pay more than 255.

The bears are inclined to treat other rises of a substantial nature as questionable, and to refuse to be bound by them. Although it was reported that Flint had been pushed to 300, Boston bidders turned to their files for the first week of December. These showed that 240 had been offered, without calling out any certificates. That a sixty-point ascension could occur in less than two months through force of the law of supply and demand was not admitted. That 290 is reasonable is disposed of similarly in spite of the fact that the Fall River bulls have firm control of the situation. To determine just how strong they were, the representative of a leading handler who knows the city by reason of long residence was in town on Wednesday. He employed as his psychological barometer three shares of Merchants left with his house for disposal. He learned that notwithstanding that 230 had been published as the bid, 225 would be a fair quotation. People, he was informed, were affected by the investment fever, and in their eagerness were not acting temperately, nor giving heed to statistical facts such as appeared in balance sheets of several corporations holding meetings recently. These comprised the Wampanoag Mills, the Barnard Manufacturing Co., the Pocasset Manufacturing Co., the Arkwright Mills, and the Laurel Lake Mills.

Surprises were common. The Wampanoag sent its net surplus from $232,339 of a year ago to $544,605 as a result of net earnings of $417,265. Dividends at the rate of 14 per cent. took $105,000, and the expenditure on machinery amounted to $29,000. The Pocasset had $480,214 as a surplus twelve months ago; its latest statement shows an increase in this of $106,391 after disbursing 12 per cent of the capital of $1,200,000 in dividends. A moderate amount of light is afforded of the condition of the Arkwright, which paid 25 per cent. in dividends in 1919 and spent $93,376 on machinery. Without stating what the reserve for federal taxation might be specifically, Treasurer Marble groups it with the item for depreciation, both aggregating $451,316. There is an apparent surplus of $223,378, against $75,040 a year ago. The Laurel Lake reduced its surplus $124,520, making the total $271,910. Barnard stockholders learned that the outlay on dividends was $80,000 and on improvements $15,860. As to the liabilities, there is some obscurity in the treasurer's report inasmuch as the items which might enlighten are missing. It is stated however that the debts had been cleaned up practically. They amounted to $97,000.

New Bedford Mill Shares

NEW BEDFORD, MASS., Jan. 29.—Demand for Taber stock has again led among New Bedford mill shares during the past week, an advance of 25 points being noted in the bid price over one week ago, with the quotation reading 240, marking an increase of fifty points in two weeks time. It has been learned that the directors of the Taber mill have appointed a committee to take under advisement the many offers which are rumored to have been made for sale of a majority of the stock, and it is said that if any satisfactory proposition is forthcoming, it will be submitted to the stockholders.

The directors this week have declared a regular quarterly dividend of $2, with an extra of eight dollars, which is already within $2.50 of what the corporation paid in the aggregate all last year, and foreshadows a record disbursement for the plant this year. In 1918 the distribution was $15.50, and $15 in 1917, while from 1910 to 1916 it paid six per cent. with the exception of 1912, when only $1.50 was declared. Dartmouth common also shows a decided increase, the bid price having advanced another fifteen points for the week, being listed at 365, while it is reported to have sold at figures ranging from 370 to upwards of 375.

BOOTH SELLS AT 200.

Booth common sold as high as 200 when the name of the plant was coupled with a pending sale, and even after the rumor had spent itself, there were sales

MILL STATEMENTS

Name and address of company.	Line of business.	Fiscal year. Year.	Fiscal year. Date.	Assets. Cash and debts receivable.	Assets. Raw materials, mdse., etc.	Assets. Total quick assets.	Assets. Real estate, bldgs. and machinery.	Miscellaneous. Amount.	Miscellaneous. Description.	Liabilities. Total.	Liabilities. Accts. payable, floating and funded debt.	Liabilities. Capital stock.	Liabilities. Surplus, profit and loss, etc.
American Knitting Co.,	Knit	1919	Nov. 20	$13,355	$117,452	$130,807	$89,074	$41,699	Miscellaneous	$261,580	$150,181	$99,000	$12,399
Waltham, Mass.	Knit	1918	Nov. 21	44,058	99,451	143,509	14,399	4,275	Miscellaneous	162,183	88,477	50,000	23,106
Indian Head Mills of Alabama,	Cotton	1919	Oct. 31	598,482	554,796	1,153,278	1,145,539	127,206	Miscellaneous	2,426,023	917,500	600,000	[1]908,524
Cordova, Ala.	Cotton	1918	Oct. 31	276,021	437,121	713,142	1,019,829	176,325	Miscellaneous	1,909,296	382,526	600,000	[2]926,770
Lanett Cotton Mills,	Cotton	1919	Aug. 31	447,644	871,415	1,319,059	2,437,417	411,168	Miscellaneous	4,167,644	451,741	1,000,000	2,715,904
West Point, Ga.	Cotton	1918	Sept. 1	750,107	443,763	1,193,870	2,149,620	495,548	Miscellaneous	3,844,038	535,302	1,000,000	2,308,738
New England Waste Co.,	Cotton	1919	Dec. 15	71,453	1,292,613	1,364,066	74,105	733,064	Miscellaneous	2,171,235	208,304	1,000,000	962,934
Revere, Mass	Cotton	1918	Sept. 9	323,195	1,535,367	1,858,562	73,823	108,281	Miscellaneous	2,040,666	396,756	1,000,000	643,912
Grant Yarn Co.,	Cotton	1919	Oct. 27	73,173	686,926	760,099	1,102,514	578,591	Miscellaneous	2,441,204	946,657	300,000	[3]1,194,548
Fitchburg, Mass.	Cotton	1918	Oct. 21	163,050	918,982	1,082,032	374,862	326,179	Miscellaneous	1,783,073	1,177,127	300,000	[4]305,947

[1] Surplus, $738,097; reserve taxes, $120,110; reserve depreciation, $50,317.
[2] Surplus, $898,491; reserve depreciation, $23,091; taxes, $5,188.
[3] Surplus, $623,493; reserve depreciation, $504,825; taxes, $63,248; cash discount, $2,982.
[4] Surplus, $219,604; reserve depreciation, $66,801; taxes, $10,000; accrued pay roll, $9,542.

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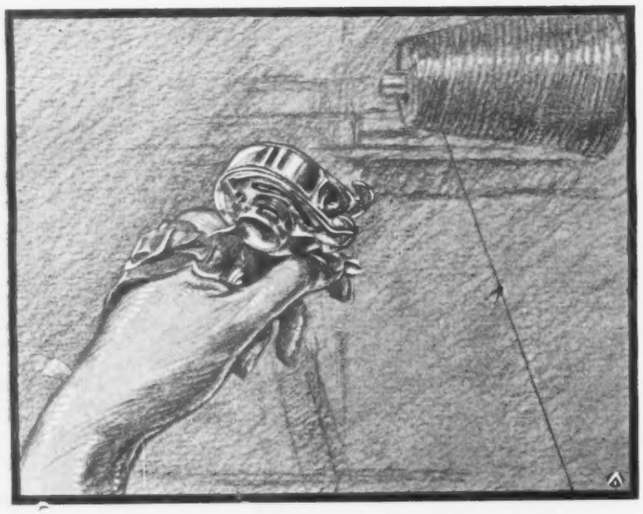

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recorded at 190. It is freely bid at 185, marking an advance of ten points over seven days ago.

Quissett common, although showing a slight falling away in the demand, is still strong enough to command a selling price of 325 and the bid quotation has advanced to this figure, an advance of five points. Holders are now demanding 350 for what little is offered. Butler common continues its upward climb, and after selling at 225 changed hands at 230. There is a demand for further shares at 227½, which marks an advance of 12½ points over what was bid last week. Fairhaven common realized 175 in the sale of a few lots, and has advanced in price a matter of seven and one-half points, being now listed at 170, while Wamsutta is quoted at 175 bid, an increase of five points, following sales at slightly better than this figure. Bristol was reported to have sold at 220, while the demand for stock in this corporation has resulted in an advance of another five points in the bid price to 210.

TO CONSIDER OFFERS

Committee Appointed to Review Propositions on Taber Mill

NEW BEDFORD, MASS., Jan. 29.—Announcement has been made to the effect that a committee of three directors has been appointed by the management of the Taber mill to take under advisement the different propositions said to have been made for the purchase of the stock of the mill. The committee appointed consists of Frederick H. Taber, John Duff and John Sullivan, and it is said that if any satisfactory offer be made for the shares, the proposition will be submitted to the stockholders of the corporation. Ever since the sale of the Page mill to the Textile Factors Company, reports have been current that another New Bedford textile industry was about to change hands, the Taber plant being freely mentioned in the rumors. One of the most persistent rumors was to the effect that the Cluett, Peabody Co. was trying to secure a majority of the stock, and that the offer of $300 had been flatly refused. Other firms reported to be negotiating for control were the Fisk Tire Co. and the Philips Jones Company, but nothing of an official nature has been forthcoming to confirm these rumors.

It is known, however, that three of four New York parties have been loooking over the possibilities of securing mills in this section, as it is a recognized fact that the purchase of any mll today would involve much less capital than the replacement value of the plant and at the same time the purchaser would come into possession of a plant that is operating while business is rushing, with an established trade worth at least a quarter of a million dollars above the tangible value of the mill. The sale of the Page mill was approximately $45 per spindle, and the offer of $300 for Taber, which is capitalized at $1,200,000 and carries 70,720 spindles, would figure around $51 per spindle.

LOWELL, MASS.—The No. 10 Mill of the Bigelow-Hartford property, purchased by J. M. Howe of Boston, has been resold by him to the Manhassett Manufacturing Co., Putnam, Conn., price unknown. The mill, which is a six-story erection, has a total floor space of about 200,000 square feet and contains 13,000 spindles with complementary machinery.

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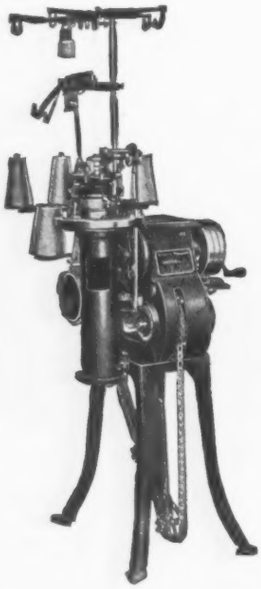

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KNIT GOODS

HOSIERY MARKET STILL WAITING

Not Enough Lines Opened to Permit Freedom in Trading—All Prices Remain Firm

The month closed with the hosiery market in virtually the same position that it opened, and activity remained confined to an unusually narrow volume. A few lines had been opened in the two closing weeks, but the majority of knitters have yet to show goods for delivery in the second three months of the year. It is confidently expected, however, that within the coming two weeks practically all of the lines will be shown for the April, May and June delivery period.

Openings of a normal kind are not looked for, and are not a possibility. Knitters are no better off than they have been since early 1919 in the matter of production, and must necessarily limit their sales to a close allotment method of distribution; in fact, there appears little hope of getting away from this kind of distribution of production throughout the entire year of 1920.

BUYERS IN CLOSE TOUCH

Realizing the present condition of the market with the small possibility of increased merchandise has led most buyers to leave the city. They are, however, keeping in close contact with the situation and are ready, if not anxious, to take goods as soon as they are available. Most of them have left instructions with selling agents as to the character of goods they most desire, with the added request that the selling agent do all in his power to cover the most urgent requirements.

Demand remains almost entirely interested in the fine gauge goods, with a seeming insatiable appetite for silks and mercerized hosiery. Knitters who have been fortunate enough to have any description of silks available for sale have found a ready market, with prices entirely secondary to the ability to buy. Quotations so far as the open market is concerned are purely nominal on all silk goods, and selling figures depend entirely upon conditions peculiar to individual transactions. However, boot silk lines, that sold around $11 per dozen at the middle of 1919 are now easily commanding $18.50 per dozen, and give evidence of being destined for $20 per dozen; these are the mock seam lines. Full fashioned lines are no longer seen in the open market and there are no quotations. The general opinion of the trade, however, is that such hosiery is worth $42 per dozen.

The situation on mercerized remains the same as it was during the closing months of 1919. Conditions outside the control of knitters are such that they have nothing definite upon which to base production costs, and are necessarily confining their sales to such amounts of production on which they are fully covered with yarns. In the yarn market the knitters are finding but little more satisfaction in their attempts to operate. They find a market almost entirely bare of mercerized yarns, and can buy only in a spasmodic way, with each new lot of yarns commanding a higher figure. With 2-80s combed peeler mercerized quoted up to $5.95, knitters have interested themselves in coarser counts, only to find prices mounting on the latter; 2-50s have advanced to $3.75 to $3.85.

Interest has yet to be stimulated in low-end hosiery, and this division of the market is unusually quiet when compared with the fine lines. Actual trading is small in volume, and sales are rather infrequent. Jobbers for the most part are buying only when it is necessary to fill in, and their purchases are held on a close hand-to-mouth basis. Despite the lack of activity, low-ends are firmly held in prices, and there is more than a possibility that quotations will advance when buying develops. Inquiry for low count cotton yarns within the past two weeks has developed an upward tendency, and prices generally on such counts have been advanced from 2 to 5c per pound. With selling prices of low-end hosiery close to a basis of actual production costs any advance in the latter should be quickly reflected in the selling price.

Hosiery Trade Notes

The limited opening of hosiery thus far made for the second delivery period of 1920 have been sufficient to thoroughly convince jobbers that they must go through another year of allotment distribution.

That it will be necessary for retailers to get at least $2.50 per pair for men's seems assured, and hosiery manufacturers are hoping that such high prices will turn the demand to lower grade socks.

Were the machinery procurable, it is likely that there would be a substantial enlargement of the industry's equipment for producing wool, and cashmere hosiery. Such lines achieved unusual popularity this winter, and that jobbers are confident they will retain their popularity next winter is shown in the repeated attempts to place new orders for delivery late this year.

H. A. Sacks, of the Daisy Whitehead Knitting Co., 94 Leonard street, has been elected president of the Hickory (N. C.) Hosiery Mills, and the Daisy Whitehead company will have exclusive sale of the output of the Hickory plant.

The Sunshine Hosiery Mills have moved their plant and offices from Chattanooga, Tenn., to Murfreesboro, Tenn., where they are located in larger and better quarters. Infants' hosiery exclusively is the product.

SMALL SWEATER SALES

A Few Mills Showing Additional Merchandise

This week saw the re-opening of a few sweater lines for delivery after the middle of the year. The openings, however, were of a particularly limited nature and provide but little opportunity for active trading. As a result only small sales were recorded, and there was no particular change in the surface conditions of the market.

Prices were not openly announced, but it is understood that they are considerably higher than the levels of last November. The advances have instilled a spirit of caution among buyers, and despite the threatening scarcity of merchandise most jobbers are doing considerable shopping before placing orders. There is little probability, however, that there will be any serious price declines this season.

HEAVY UNDERWEAR TENDING UPWARD

Lines Being Withdrawn and Prices Marked Up—Most Lines Sell Actively

There is a decided disposition on the part of underwear jobbers to go slow in their purchases despite their knowledge of the acute scarcity of merchandise and the probability that prices are to be even higher than current high levels. Throughout the Mid-West particularly, manufacturers are meeting with an indifference among buyers and are not booking orders in the volume that had been expected a week or two ago.

The market is so inherently strong, however, that current lack of buying interest has had no weakening effect and there is little prospect of a softening developing in prices. In fact, quite the reverse seems in prospect, and in not a few instances quotations have been advanced from the levels of the first of the month. Heavyweight lines are the most prominent in the advancing tendency. The bulk of interest has centered around the 16-pound union suits, and in many instances prices are up 10 to 12½ per cent. from the figures at which they were opened two weeks or so ago. One mill that opened at $19.50 has already withdrawn, and the belief is that when the line is again in the market it will be priced at between $22 and $24. Mills that have not experienced a busy demand for this description are holding the suit at $20 per dozen, and the prospect is that they will soon be asking $21 per dozen even if demand does not develop into active proportions.

PRESSING FOR DELIVERIES

A rather contradictory situation has developed in the market as a whole. A few selling agents state that demand has not been of the volume that they had confidently expected and that they still have a fair amount of merchandise to sell. Others, however, and a probable majority of selling agents have found demand to be fully as active as they had looked for and they have secured a ready market for all the production they are able to sell for the April to June delivery period. In several sections of the country jobbers apparently are of the opinion that they must place business immediately if they are to secure deliveries later in the year and they are pressing manufacturers to take orders extending over a distant period. The knitters, however, are confining sales to deliveries not past the end of June. Manufacturers who sell direct to the retailer have met with a similar attitude on the part of many of their buyers, but they differ from the other manufacturers in that they will sell for delivery late in the year. A considerable volume of business has been done with the retailers and most of them are placing business early to avoid the probable advances in prices.

BOYS' LINES SCARCITY

Active inquiry for boys' lines of underwear has developed a threatening scarcity in such merchandise and close selling has been a necessary development. The reason for this, as pointed out in the market, is that previously knitters have been able to realize so little profit from the boys' goods that they have changed over their machinery to other lines, resulting, of course, in a rapid diminution of production that is now being keenly felt. Price advances, rather sharp in nature, are looked for in boys' union suits and single garments.

MORE LIGHTWEIGHT TRADING

Jobbers who operated close on a hand-to-mouth basis in the spring lines last season are now coming back to the market to place duplicate business. Others who, because of the allotment system of the distribution, were not fully able to cover their requirements are also back in the market seeking opportunities to place additional business, and the lightweight section has taken on an active appearance. The volume of business actively taken, however, is comparatively light for the majority of knitters are busy on orders already in hand and not ready to take on new business.

Underwear Trade Notes

The market is now fully open on heavyweight lines for delivery to jobbers during the three months starting April 1, and while a few sellers report that demand has not been as active as they had anticipated the majority of lines has been sold up quickly.

Advancing prices in the cotton yarn market continue to control the selling price for underwear and advances in the yarns within the past two weeks will be reflected in business yet to be booked in underwear. The 16-pound union suits that sold two weeks ago at $19 to $20 seem destined for as high as $24 per dozen before the season is ended.

Knitters who have been attempting to average down their production costs by using coarser counts of yarns than usual find little success for inquiry for the lower counts usually brings about increased price levels.

RECOMMEND NEW CONGRESS

Resolution Introduced Into Senate Providing for Industrial Body

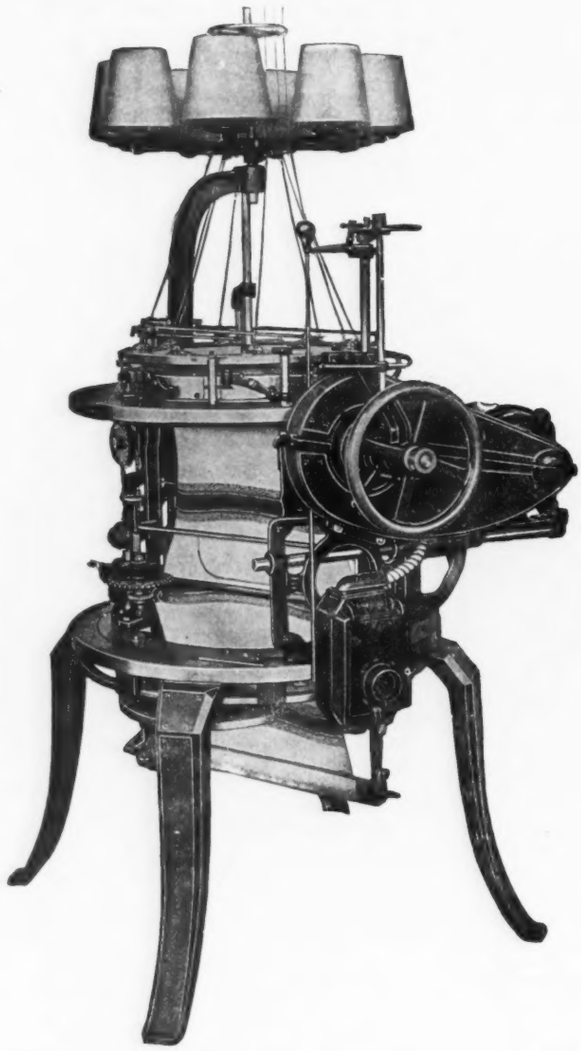
WASHINGTON, D. C., Jan. 30.—The recommendation that the President call a new National Industrial Congress to cope with present industrial problems was made in the Senate concurrent resolution submitted by Senator Kenyon, chairman of the Committee on Education and Labor.

Pending the calling of the congress, it is recommended that the President appoint a national labor board patterned after the National War Labor Board and following its principles and precedents. This board would receive ex parte complaints and joint submissions or might institute proceedings on its own motion or at the direction of Congress or the President. It would attempt the establishment of joint boards for the adjustment of industrial disputes in the leading industries.

This board would be superseded by the National Industrial Congress to be called later and to be made up of 150 representatives of employers and 150 representatives of employes. The second Industrial Conference now in progress would be made an organizing committee for the new congress.

The National Industrial Congress would have the duty of establishing permanent agencies of adjustment, framing an industrial code, and sanctioning standards of working conditions. Its recommendations for legislation would be submitted by the President to Congress. An appropriation of $50,000 would be made for the congress.

Wildman Motor Drive



Look this drive over, and then go out in your knitting room and form a mental picture of how it would look if all the machines were equipped with Individual Motors. Dangerous belts and unsightly line shafts done away with, bettering the light and adding to the convenience of the knitting department.

But the improved appearance of the knitting room is not the only advantage. The motor drive increases the production of the machines 10 to 15%, as the loss due to belt slippage is entirely done away with.

The drive can be attached to a Wildman Belt Driven Machine in a half an hour's time, by simply taking out the old side and slipping in the new drive complete. No drilling or tapping is necessary.

Wildman Mfg. Co.

Norristown, Penna.

Dye Embargo

(*Continued from page 53*)

industry. In this connection he said:

"We start in with the nitration of benzol. You get, perhaps, 90 per cent. Take the reduction of that to anilin to make anilin oil, which you have heard a great deal about; that is a well known process which has been going on for years. We practiced it on a small scale before the war. That product would yield 70 per cent of the nitro benzol. If you get 90 per cent from benzol and 70 per cent from anilin, you get 70 per cent. of 90 per cent., or 63 per cent. of benzol to anilin. That is equally true as regards nitric acid. You are also losing a part of the nitric acid going off in fumes and disappearing in the process. Those are very simple and well known reactions. The stumbling block is that in the later process you may get only 40 per cent. or 30 per cent. or 20 per cent. yields. You have heard say that in the case of indigo there are some fifteen steps. This reduction of your output through poor yield is cumulative step by step. This reduction by 80 per cent. and a reduction of that by 90 per cent., and so on, until finally as Dr. Stieglitz said, you got out enough to see, but not enough to use. We have had exactly that experience in every new dye we have undertaken. The yields have been abominable. Ordinarily you would think the chemists are to blame, but as a matter of fact they have done splendidly to get the yields they did. It is very elusive: it is not like going into an iron foundry; the yield is right there. If you spill a little of it you will either burn your finger with it or you cannot help finding it when it is cold. Our materials disappear in the most mysterious manner. They get away and you cannot see them, and do not know what had become of them. Or they are converted into other materials, the identification of which is difficult to determine. A great many of these materials it cannot be determined what they are; it requires long chemical research to determine what it is you have. It may take a month. That is the main reason for the great cost of dyestuffs in the United States. We are beginners. We have only been in it two or three years. We cannot attack all of these thousands of dyes at once."

Mr. duPont expressed the opinion that he did not think it would be possible ever to get the price of indigo down to the pre-war German price, but he also was of the opinion that the Germans could not get back to their former price.

ITEM OF REPAIRS

Mr. duPont spoke of another item which had to be considered in connection with the question of costs and which, while not as important as that of yields, yet was a very important factor. He referred to repairs. He illustrated that point as follows:

"When the war broke out we began making smokeless powder for the Allies in large quantities. One of the necessary constituents for smokeless powder is a stabilizer. That stabilizer was discovered in Germany and is known as diphenylamin. We used to obtain that entirely from Germany, and when the war broke out we felt around to see what could be done. One of the present American dye manufacturers jumped in and kindly furnished us diphenylamin. They came across the very problem we had later; they found it was hard to get quantity products; quantity production was almost impossible. We had to have diphenylamin for the powder and our stock, of which we had a little ahead at the start, was rapidly dwindling. Nothing would do but to go in and make diphenylamin for ourselves, make enough for our own requirements and be on the safe side. We soon got a factory going, but ours cost as much as our competitors', $1 a pound.

"Senator Nugent: You passed it on, didn't you?

"Mr. duPont: I guess we managed to, yes, sir; and I think it was very lucky for us and the United States too, because the United States would have been in a bad way if we could not have furnished the powder. One of the steps in the diphenylamin process required an enamel lined digester. This was the only substance that would withstand the action of the acid. We had an enamel glazed iron digester, and that very promptly cracked; some crack in three days, and some last a week, and the acids would get under the enamel and strip it off and ruin everything we put in. We bought all a certain factory could make and practically subsidized the concern making enamel ware, and we gave them orders to make nothing but digesters and ship them as fast as they became cool enough; we had a steady stream of digesters from Chicago to keep us in digesters, which were necessary for this one process, and they were absolutely unnecessary if we had known the proper apparatus for that purpose, so we kept that house turning out digesters with enamel lining for the period of the war. That was a repair item saddled on the cost of diphenylamin; we did not know any better.

"Let us go to the next cost; that is obsolescence; by that I mean the building of a plant for a specific method of manufacture and then finding out afterward that there is a very much better way of accomplishing the same result by a different series of reactions, as you have to design and rearrange to carry on another series of reactions; which leaves this special apparatus on your hands which does not fit the later reactions. Your capital is wasted and spent and that ought to be a part of your cost and you cannot get it back in any other way than charging it to the cost of production. In most cases that is not serious, because the apparatus is interchangeable, but in some cases it is not. For instance, in making metallic sodium, used in the manufacture of indigo, we had cheap current and electrolytic processes and we got the cost down, but we never did get it down to what it ought to have been. Then we found that somebody else, a competitor, was able to make metallic sodium away under our cost. The only thing to do was to scrap the plant and buy from him until we learned how to make it. And those things go on in the dye industry every day. Something has to be abandoned, and at a very great cost.

UTILIZATION OF BY-PRODUCTS

"The fourth item is the utilization of by-products. That at first appears a very simple proposition, but it is far from simple in organic chemistry. A by-product which is apparently a waste product may have great value some place else, if we found a place where it could be used and could work it up. We can store and store it until we have got a great deal, but sooner or later you have to begin to throw it away, because you cannot keep it. The charge of housing it becomes greater than the prospective value, and you have locked

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TORRINGTON
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EXCELSIOR Latch Needles are used and appreciated wherever high-grade silk goods are made, because of their unvarying quality and perfection of finish. They are strong, dependable, uniform. They give service—the long kind of service that cuts down waste and seconds and adds to profits.
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BLEACHED GOODS

(Selling Points XIX)

If your trade mark stands for a certain quality, e.g., a non-injurious bleaching treatment, the public will soon ask for the goods by name.

Nothing impresses the long-suffering consumers as does an argument on better bleaching.

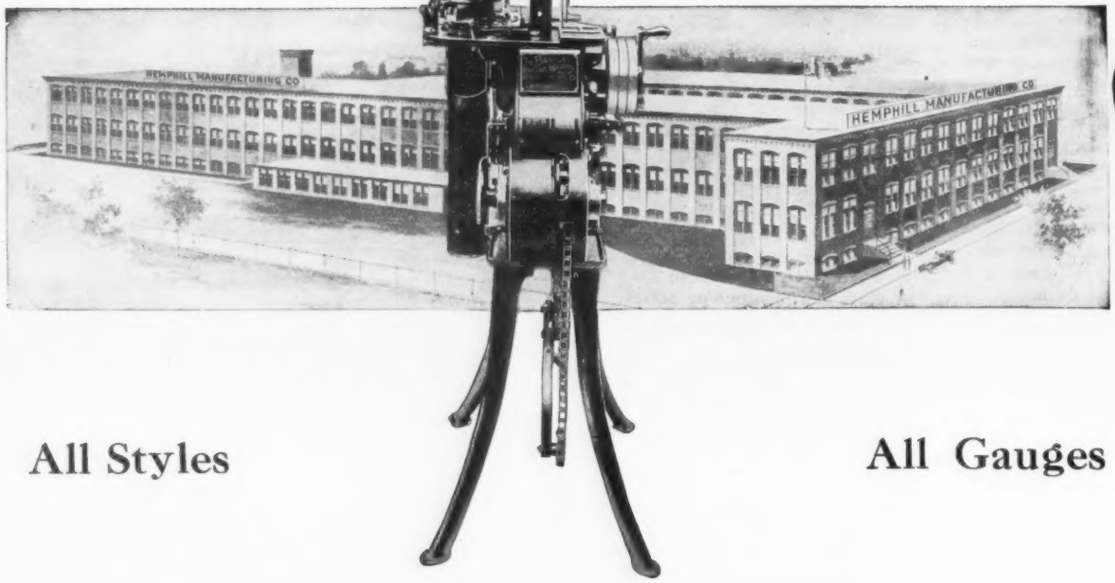
Better-bleaching advice free to mills.

THE ROESSLER & HASSLACHER CHEMICAL CO.
New York, N. Y.

BANNER

FULL AUTOMATIC

HOSIERY MACHINES



THE BANNER TRADE MARK ALWAYS FIRST WITH THE LATEST

THE BANNER TRADE MARK ALWAYS FIRST WITH THE LATEST

All Styles

All Gauges

SIMPLICITY—SPEED—PRODUCTION—QUALITY

Four important things to consider when buying hosiery machinery

ALL PARTS ACCESSIBLE FROM FRONT OF MACHINE

Write for illustrated catalog

HEMPHILL COMPANY

Main Office and Factory: PAWTUCKET, RHODE ISLAND

Philadelphia Office and Showrooms: Rooms 208, 209, 210, Colonial Trust Bldg., 13th and Market Sts., Philadelphia, Pa.

Southern Office: Rooms 912, 913, James Bldg., Chattanooga, Tenn.

up there a great deal of capital in storehouses and containers.

"Senator Nugent: The dye industry in this country is a new industry?

"Mr. duPont: With us it is very new. We have been in it for two years. We thought we were among the best equipped of the companies to attack the problem; we had the capital, and we thought we had the necessary personnel, a very large force of technical men; we have had a wide experience in miscellaneous manufacture; and what I think is the most important of all, we have young members on our executive committee; young men in the executive management; we have the optimism of youth in our management; we have not yet learned to be afraid of things, and we thought if anybody could make it go we could.

"The six manufacturers in the United States before the war did not comprise a dye industry; they made a few dyes, but nothing comparable with the present industry. I believe the industry we carry on is 75 per cent. greater than the entire dye industry before the war. The National Aniline & Chemical Company is the only one bigger than we are."

In answer to questions Mr. duPont stated that their turn-over was about twelve million dollars a year, and added:

"That does not mean anything at all. We are expanding rapidly, but we have not reached commercial production yet. I think we will be one of the large producers. If we succeed it will be through efficiency; and if we fail we will fail through lack of efficiency. They are welcome to trim us, if they can, but they have a good stiff job ahead.

"We must have an embargo until we learn to do it. It is up to you people; if you say two years, as the Longworth Bill has it, you will prevent the very thing that you have in mind. Mr. Wigglesworth pointed out yesterday you cannot get capital to go into the industry on an uncertainty. It is an undertaking; we have put in about twenty million dollars, $11,000,000 in plants and $9,000,000 in supplies, finished products and accounts receivable."

"Senator Curtis: How much time do you advocate?

"Mr. duPont: I would say ten years; five years may be enough, but the more time you give the more capital will flow into it. The more sure the men undertaking it are, the more capital will flow into it, and leave them not afraid of German aggression. You put an embargo to prevent foreign dyes coming in and capital will go into it."

Mr. duPont said that the reason why in a comparatively short time his company had made a good showing in explosives was because it had had three years' warning of the coming of the war and three years' experience in the manufacture of explosives for the Allies.

PRODUCTION OF RHODAMINE

Referring to Rhodamine, Mr. duPont said:

"We made it; we took over a little plant, and only a short time ago somebody checked up on the Rhodamine. We asked how much stock was on hand and there was next to nothing, and it appeared that we sold little of it, and investigation showed that it was going out in dinner pails, it was stolen, and possibly that is the source of that $75 Rhodamine."

"Senator Curtis: How much were you selling it for?

"Mr. duPont: Possibly $18 or $20.

"Senator Curtis: I called attention to that because it was referred to in the reports of the Tariff Commission; I read it, and read it into the record; it is in the Tariff Commission's report."

Referring to indigo, Mr. duPont said:

"Mr. James T. Pardee, of the Dow Chemical Co., said yesterday that they were producing 150,000 pounds of indigo per month, and they were not selling at less than 65 cents a pound. We are in the same position, except that we are producing 600,000 pounds a month. We have not got into the more refined indigo, the last word, in brom indigo. We sell our entire output for overalls and plain goods. We are keen to get into the big place; we want to grind it out by the ton and have a big enough volume so that we have specialists on everything. That, I think, is the keynote of success in this country."

Further on Mr. duPont said on the idea of continuing in business:

"We would be the first to quit if we are not supported. We have the money of stockholders all over the country. Myself and the other men on the executive board are merely the trustees of that money. If we do not get protection against Germany, it is throwing good money after bad.

"The great asset we have is our personnel. It is worth more than our plants. Our organization so far as specialists is concerned; our engineers; our research men; they are all of so great value that we could turn them into other channels and make more than we make in the dye industry; $20,000,000 is a large sum; it is perhaps one-tenth of our capital. It does not kill us to have to give it up and we candidly will not put in $10,000,000 more. It is like trying to swim up Niagara Falls. We have tied up appropriations to the extent of $5,000,000 which are awaiting decision of what Congress is going to do. Eight months ago it never entered our heads that the dye industry would not be protected; it seemed so inconceivable that anybody should suggest such a thing. We did not know what was necessary for protection, but we were perfectly sure it would be protected. The opposition that developed to the legislation in the House began to frighten us a little bit, and when the opposition came later we simply did what any sane business man would do, held in our money and did not put out capital until this thing was cleared up. If it was all my money I would go ahead and trust to Congress to protect me later, but I cannot do that with trust funds."

"Senator Nugent: I do not think you need entertain any apprehension as to whether the Congress will protect the dye industry in this country.

"Mr. duPont: I know from hearing you people speak the temper is to protect it but will it be protected in a way which will be a quick way to kill it; will they say because a tariff protected some other industry it is a good thing to protect this?

"Senator Curtis: I think the general opinion is you could not put a duty on that would be protective that the people would stand for.

"Mr. duPont: Precisely.

"Senator Curtis: So there must be some other method found, if there is one."

Mr. duPont expressed the view that it would be impossible to attack all the problems within two years and that if reasonable time were not given capital would not flow into the industry. Mr. duPont then argued for an embargo with a permit to bring the products not

Oakite Eliminates Second Kier Boil

BY using Oakite in the first kier boil—this large knitting mill found it needless to put its cotton underwear tubing through the second kier boil formerly required.

When caustic alone was used in first boil, the goods came through with brown spots—necessitating an extra seven hour boil in soda ash.

Now Oakite and caustic are used in equal proportions in first kier boil. The goods come through *clean*—and are run right into the bleach tanks.

This Advertisement is one of a series based on actual occurrences w. w.

Oakite has increased production and saved money for this mill by eliminating the seven hour extra kier boil.

Perhaps we can serve YOU too?

OAKITE

MANUFACTURED BY

OAKLEY CHEMICAL CO.

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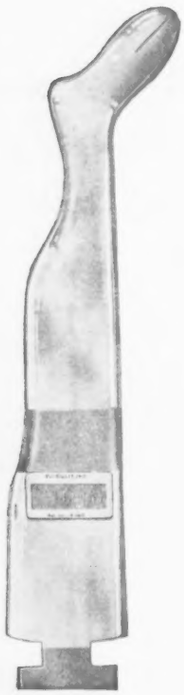
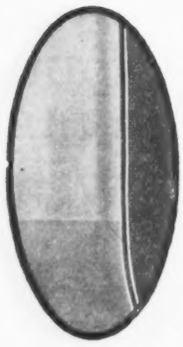
"Paramount Method" Grooved Forms

FOR

Mock-Seam and Full Fashioned Hosiery





Side Groove

Center Groove

Double Groove

PARAMOUNT GROOVED FORMS insure economical and correct boarding of Mock Seam and Full Fashioned Hosiery.

Three types of Grooved forms, each constructed to meet particular boarding requirements.

The " PARAMOUNT CENTER GROOVE " form with the groove in the center of the edge of the form is well-known and widely used. This form eliminates " rights " and " lefts," insures perfect alignment, and simplifies and facilitates work in the pairing or mating department.

The " PARAMOUNT SIDE GROOVE " form for manufacturers preferring the seam finished on one side. This particular form is favored by many users. The groove on the front edge makes it possible to quickly place the seam and assures the same perfect alignment of fabric as the Center Groove.

The " PARAMOUNT DOUBLE GROOVE " form is adaptable for the finishing of " rights " and " lefts." The double groove makes it possible to finish the stocking with the seam on either side *On the Same Form,* insuring minimum equipment for production required.

Patents dated October 14, 1913, March 6, 1917, and May 28, 1918, cover these features.

PARAMOUNT SERVICE GOES WITH PARAMOUNT FORMS

Complete equipment can be seen in New York Office, 366 Broadway. Address all correspondence to Chicago Office.

PARAMOUNT HOSIERY FORM DRYING CO.

Hunter Building, Market and Madison Streets, CHICAGO, ILL.

"CONTINENTAL"
Latch Needles of the old reliable quality are now available
E. W. S. JASPER
Successor to
Continental Latch Needle Co.
120 Liberty Street, NEW YORK

PROMPT SERVICE
RIGHT PRICES
BONE DRY
HOSIERY FINISHING BOARDS
THAT WORK ABSOLUTELY SMOOTH
JOS. T. PEARSON
1825 E. Boston Ave. Philadelphia, Pa.

FULL AUTOMATIC
KNITTING MACHINES
Yarn Changers and Platers
For Seamless Hosiery
Easy Transfer
Accurate
Measuring Device
Produces
Finest Fabrics
PAXTON, PRICE & O'NEILL
3rd and Green Sts.
PHILADELPHIA, PA.

KNITTING NEEDLES
LATCH *and* SPRING
Bought, Sold and Exchanged
NATIONAL KNIT GOODS
SUPPLIES CO.
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PHILADELPHIA, PA.
United States Distributors for
CHARLES E. WHEELER & SON
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Carrier
AIR CONDITIONING AND DRYING EQUIPMENT
Carrier
Engineering Corporation
Specialists in humidity and temperature regulation
39 Cortlandt St., New York
Boston Philadelphia Buffalo Chicago

L. T. IVES CO.
Established 1874 Manufacturers of all kinds of
Spring Knitting Needles
Slides, Sinkers, Jacks, Etc.
NEW BRUNSWICK, N. J.

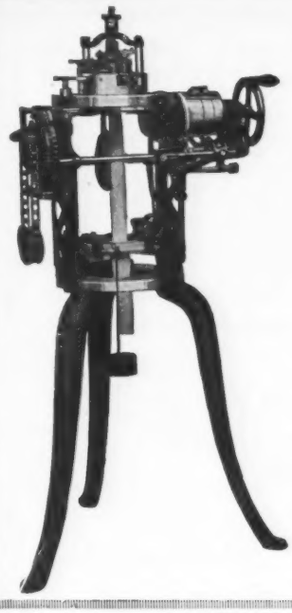
manufactured here during a ten years' period.

He added that his firm was producing eight vat dyes in quantity but that they were not putting them on the market and it was not their purpose to sell them commercially until the production had been thoroughly standardized.

"We do not put out one until we can rely upon it; until we know it is fairly reliable and we have to run the manufacture of it a certain time to be reasonably sure our standards are to be maintained. They will be on the market in material quantities; not enough to supply the whole country, but in a material amount, say, 1,500 pounds a day. That is a good deal on vat dyes, it is not much on indigo."

E. C. Klipstein, who had been an importer of dyes since 1880 and who had also been a manufacturer, told of German methods and explained how the users of alizarine had managed to have that product put on the free list and kept there. He asserted that the by-products of coke ovens were not utilized here because there was no market for them due to the fact that there was no dye industry. He said that the Germans would not sell the by-products of coke here to competitors. He asserted that the Germans had been planning for the recent war since 1870 and that they knew perfectly well what they were doing and that they understood thoroughly the connection between the dyestuff industry and the explosive industry and munitions. The German Government backed up its exporters in getting the domination of that industry not alone to sell their products but to keep their trained chemists so that they might have an organization when the time came to make explosives, and that through thus controlling the industry other nations would not have the facilities or the personnel for manufacturing such explosives. He asserted that if we wanted to keep in the game of chemistry we would have to maintain some industry that would enable us to hire chemists and train them and put our people into the real spirit of developing chemistry and that the only industry that could do that was the dye industry. He added that it would be possible to make all the intermediates in the United States and in sufficient quantities to supply the whole world with dyestuffs but that what was needed in the business was capital and capital would not flow into it unless it saw the opportunity of getting something back. It was a question, he alleged, as between buyer and seller, and it was for the Congress to say whether it was worth while for the people of the United States to tax themselves enough, to keep at it long enough to put the industry here on safe ground. Mr. Klipstein further stated that if it had not been for the seizure of German patents and the formation of the Chemical Foundation this country would not even yet be making a great many of the colors which it was now producing. He advocated a system of licensing or regulation of imports.

J. R. M. Klotz, manager of the Newport Chemical Works, of Milwaukee, referring to a statement which had been made concerning the lack of anthracene in this country, said that it was more the unkindness of nature in the distribution of anthracene than the lack of it. Mr. Klotz added that the coal here if coked by the proper method to increase the yield of anthracene was of sufficient quality to give enough of that product for the dyestuffs required to be made.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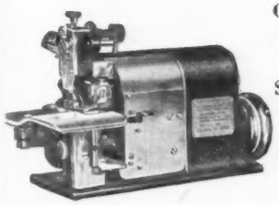
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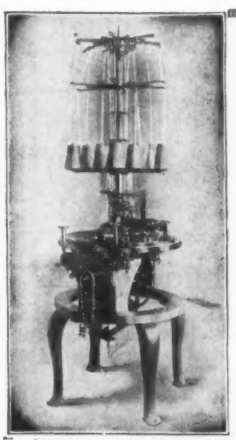
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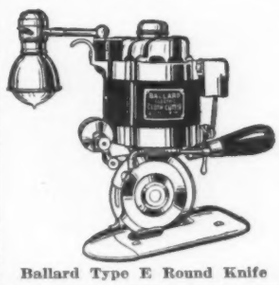
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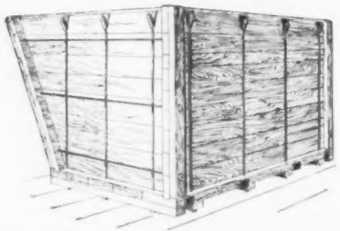
TUBS



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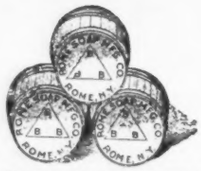

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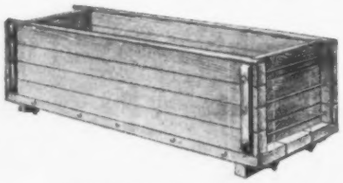

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Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample

YARN MARKETS

QUOTATIONS

The following quotations compiled in Boston, Jan. 28

EASTERN PEELERS

COTTON YARNS

CONES

	Carded.	Combed.
8s	76 — 78	1 00— ..
10s	78 — 80	1 10— ..
14s	80 — 82	1 15— ..
16s	84 — 86	1 20— ..
20s	86 — 88	1 25— ..
22s	88 — 90	1 30— ..
24s	92 — 94	1 35— ..
26s	95 — 1 00	1 40— ..
30s	1 05— 1 10	1 50— ..
32s	1 15— 1 20	1 60— ..
34s	1 25— 1 30	1 70— ..
36s	1 35— 1 40	1 80— ..
40s	1 45— 1 55	2 00— ..
50s		2 50— ..
60s		3 00— ..

SKEINS

	Carded.	Combed.
2-12s	Nominal	1 30— ..
2-14s	Nominal	1 35— ..
2-16s	Nominal	1 40— ..
2-18s	Nominal	1 45— ..
2-20s	Nominal	1 50— ..
2-22s	Nominal	1 65— ..
2-24s	Nominal	1 64— ..
2-26s	Nominal	1 72— ..
2-28s	Nominal	1 80— ..
2-30s	Nominal	1 90— ..
2-36s	Nominal	2 25— ..
2-38s	Nominal	2 35— ..
2-40s	Nominal	2 50— ..
2-50s		2 90— ..
2-60s		3 25— ..
2-70s		3 75— ..
2-80s		4 25— ..

WARPS

	Carded.	Combed.
2-30s	Nominal	2 00— ..
2-36s	Nominal	2 25— ..
2-40s	Nominal	2 50— ..
2-50s		3 00— ..
2-60s		3 50— ..
2-70s		4 00— ..
2-80s		4 50— ..

REVERSE TWIST THREAD YARNS

	Carded.	Combed.
2-24s	Nominal.	Nominal.
3-30s	Nominal.	Nominal.
3-36s	Nominal.	Nominal.
3-40s	Nominal.	Nominal.
3-50s	Nominal.	Nominal.
3-60s	Nominal.	Nominal.
3-70s	Nominal.	Nominal.
3-80s	Nominal.	Nominal.

EASTERN EGYPTIANS

SINGLE SKEINS (COMBED)

30s Nominal	55s Nominal
35s Nominal	60s Nominal
40s Nominal	70s Nominal
45s Nominal	80s Nominal
50s Nominal	90s Nominal

TWO AND THREE-PLY SKEINS (COMBED)

30s Nominal	65s Nominal
35s Nominal	70s Nominal
40s Nominal	75s Nominal
45s Nominal	80s Nominal
50s Nominal	90s Nominal
60s Nominal	

TWO-PLY WARPS (COMBED)

2-30s Nominal	2-50s Nominal
2-35s Nominal	2-60s Nominal
2-40s Nominal	2-70s Nominal
2-45s Nominal	2-80s Nominal

COMBED SEA ISLAND

	Single.	Two-ply.	Reverse twist thread-yarn.
12s	Nominal	Nominal	Nominal
14s	Nominal	Nominal	Nominal
16s	Nominal	Nominal	Nominal
18s	Nominal	Nominal	Nominal
20s	Nominal	Nominal	Nominal
23s	Nominal	Nominal	Nominal
28s	Nominal	Nominal	Nominal
30s	Nominal	Nominal	Nominal
40s	Nominal	Nominal	Nominal
50s	Nominal	Nominal	Nominal
60s	Nominal	Nominal	Nominal
70s	Nominal	Nominal	Nominal
80s	Nominal	Nominal	Nominal
90s	Nominal	Nominal	Nominal
100s	Nominal	Nominal	Nominal

The following quotations were compiled in Philadelphia and New York, Jan. 29

SOUTHERN YARNS

SINGLE SKEINS—WARP TWIST

6s to 8s	—	—73	20s — —88
10s	—	—74	24s 96 —97
12s	—	—75	26s — —1 02
14s	76	—77	30s 1 15—1 18
16s	77	—78	40s 1 75—1 80

TWO-PLY SKEIN

2-8s	—	—72	2-24s 1 00—1 02
2-10s	73	—74	2-26s 1 05—1 10
2-12s	—	—77	2-30s 1 20—1 25
2-14s	79	—80	2-36s — —1 70
2-16s	—	—80	2-40s 2 00—2 25
2-20s	89	—90	2-50s — —2 25

SINGLE WARPS

10s 72	—73	24s 98	—1 00
12s 74	—75	26s 1 02	—1 05
14s 75	—77	30s 1 15	—1 20
16s 77	—78	40s 1 65	—1 75
20s 90	—93		

TWO-PLY WARPS AND TUBES

2-8s 76	—78	2-24s 1 05	—1 10
2-10s 78	—80	2-26s 1 12	—1 15
2-12s 79	—83	2-30s 1 25	—1 30
2-14s 83	—85	2-40s 2 00	—2 19
2-16s 87	—90	2-50s 2 30	—2 40
2-20s —	—95		

8/3 and 4-ply skeins and tubes, dark, 64-65c.; white, 69-70c.; 2-10s and 2-12s slack, 70c.

CONE (FRAME SPUN)

6s —	—72	20s 80	—82
8s —	—73	22s 81	—83
10s 75	—76	24s 90	—92
12s 75	—76	26s 95	—97
14s 76	—77	30s ord 1 07	—1 15
16s —	—78	40s 1 50	—1 60
18s 79	—80	50s 2 25	—2 35

BLACK AND WHITE D. & T. SKEINS

(ALL PRICES NOMINAL)

(Carded)

2-26s	—..	2-30s	—..
2-28s	—..	2-40s	—..

STAPLE COMBINATIONS

2-30s	—..	20-44s	—..
10-30s	—..	26-60s	—..
14-30s	—..	16-80s	—..
16-30s	—..	16-120s	—..

BLENDED

2-16s	—..	2-36s	—..
2-20s	—..	2-38s	—..
2-34s	—..	2-40s	—..

EASTERN PEELERS AND EGYPTIANS

(Cones or Tubes)

Combed Peeler.	Combed Egyptian.
2-20s Nominal	2-20s Nominal
2-24s Nominal	2-24s Nominal
2-28s Nominal	2-28s Nominal
2-30s Nominal	2-30s Nominal
2-34s Nominal	2-34s Nominal
2-36s Nominal	2-36s Nominal
2-38s Nominal	2-38s Nominal
2-40s Nominal	2-40s Nominal
2-50s Nominal	2-50s Nominal
2-60s Nominal	2-60s Nominal
2-70s Nominal	2-70s Nominal
2-80s Nominal	2-80s Nominal

CARDED PEELER CONES

10s 80	—81	24s 91	—93
12s 82	—83	26s 97	—1 00
14s 83	—84	28s 1 04	—1 07
16s 84	—85	30s 1 10	—1 15
18s 85	—86	32s 1 15	—1 20
20s 87	—88	36s 1 50	—1 55
22s 89	—90	40s 1 60	—1 65

CARDED PEELER, SHUTTLE COPS

8s —	—76	26s —	—1 02
10s —	—79	28s —	—1 18
12s —	—81	30s —	—1 20
14s —	—81	32s —	—1 27
16s —	—82	34s —	—1 30
18s —	—83	36s —	—1 32
20s —	—85	38s —	—1 35
22s —	—86	40s —	—1 40

SOUTHERN COMBED SEA ISLAND WARPS AND SKEINS

2-20s Nominal	2-50s Nominal
2-30s Nominal	2-60s Nominal
2-40s Nominal	2-80s Nominal

SOUTHERN COMBED PEELER WARPS, SKEINS AND CONES

2-20s	1 55—1 60	2-50s	3 35—3 40
2-30s	2 10—2 25	2-60s	3 75—3 90
2-36s	2 40—2 50	2-70s	4 00—4 25
2-40s	2 65—2 75	2-80s	4 75—5 00

SINGLES

12s	1 12—1 14	30s	1 55—1 60
14s	1 16—1 18	36s	1 85—1 90
16s	1 20—1 22	40s	2 00—2 25
18s	1 22—1 24	50s	—2 75
20s	1 24—1 26	60s	3 40—3 50
24s	1 26—1 30	70s	4 00—4 10
26s	1 30—1 35	80s	4 50—4 75

MERCERIZED COMBED PEELERS CONES—(UNGASSED)

Southern Yarns	Eastern Yarns.
2-20s Nominal	2-20 Nominal
2-20s Nominal	2-20s Nominal
2-30s Nominal	2-30s Nominal
2-30s Nominal	2-30s Nominal
2-40s Nominal	2-40s Nominal
2-44s Nominal	2-44s Nominal
2-50s Nominal	2-50s Nominal
2-60s Nominal	2-60s Nominal
2-70s Nominal	2-70s Nominal
2-80s Nominal	2-80s Nominal

Extra cost for gassing approximates: 40s and below, 10 to 12c.; 40s to 50s, 11 to 13c.; 50s to 60s, 12 to 13c.; above 60s a rise of 2c. for every ten numbers.

Less cost for skeins: 20s and below, 3c.; 20s to 30s, 4c.; 30s to 40s, 4½c.; 40s to 50s, 5c.; 50s to 60s, 6c.; 60s to 70s, 7c.; 70s to 80s, 8c.; 80s to 100s, 10c.

CATLIN & COMPANY
COTTON YARNS
SOLE AGENTS FOR
LAWTON SPINNING COMPANY
HAMILTON MFG. COMPANY
TREMONT and SUFFOLK MILLS
and other mills furnishing full range of all numbers
NEW YORK BOSTON PHILADELPHIA CHICAGO

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You naturally think of yarns of high quality, and where the same can be secured from reputable spinners. Samples of the Groves product convince prospective buyers of the high order of the spinning of the Groves Mills. "Once a customer, always a customer," is the rule that generally applies to users who try out our yarns.
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Stock Dyed Sulphur Colors
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Columbus - - - - - Georgia

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White Oxfords Silvers
FROM MILL DIRECT TO CONSUMER

A Yarn that Bleaches Well- -
"Belton"—our super-carded yarn has a reputation for its excellent bleaching qualities. It is made from Good Middling Selected Stock. 20s to 24s.
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ABERFOYLE MANUFACTURING COMPANY

DYERS, BLEACHERS, GASSERS

DYERS OF COLORS FAST TO SUN AND BLEACHING

MERCERIZED YARNS

Our Yarns are the Products of American Mills

MAIN OFFICE

CHESTER, PA.

401 MORRIS BUILDING
PHILADELPHIA

746 INSURANCE EXCHANGE
CHICAGO

YARN MARKETS

YARN MARKET STRONG; PRICES ARE HIGHER

There Appears to Be Nothing to Offset the Optimism of Large Operators—Higher Figures Are Predicted

It is taken for granted that stock yarns have been sold out of this market. Recent business has been of a character to clean up whatever merchants had at their disposal. Notwithstanding the pace at which the yarn market has been going the inquiry is still relatively well maintained; 30s to 50s two-ply skeins are wanted and current quotations have advanced smartly. The market is strong and today's price basis firm. For 2-40s prices are 25 to 35 cents higher than they were a week ago, and the demand to warrant the advance is present.

HOLDINGS REPORTED LIGHT

If the yarns asked for or the real business offered could be placed market transactions would make a better showing, but so much goes by the board because deliveries as called for cannot be obtained from spinners the business transacted is only relative and controlled by limited confirmation. Thursday as well as Wednesday of this week was noticeably active so far as inquiry mentioned and a rush of offerings for export especially for singles. For export single carded 20s sold at 92 and 24s at 98 cents; calling for special packing and some unusual extras which accounted for the very peak price.

STRONG AND FIRM

The wire trade has been chasing small lots for quick delivery and have not hesitated over any advance. An inquiry developed on Thursday morning for 50,000 pounds 22s for which 94 cents was offered for February, March and April, and it further developed that those deliveries were available. However, large dealers claim that they have yarns to cover only a short period and that yarns to replace their holdings are not to be had. The many rumors and guesses that float about are discounted at face value. The complaints of small consumers are numerous to shake the faith of the weak-hearted, but the condition of trade, based on the best information to hand, is strong and the price situation firm.

Cotton Yarn Trade Notes

The Lowell Yarn Co., with main offices at Philadelphia, announce that the offices which they had previously arranged in the Hospital Trust Bldg., in Providence, R. I., have been located in more advantageous quarters at 17 Exchange street. The New York office is continued as heretofore at 200 Fifth avenue, with E. I. Reynolds, manager, assisted by C. B. Gillmore.

The Lowell Yarn Co., with main offices Philadelphia, has been appointed the exclusive selling agents for the yearns of the Rhyne-Anderson Mills Co., Troy, N. C. These consist of 16s to 24s two-ply carded warps, skeins and tubes.

Andrew S. Waterman, formerly connected with the Warren Manufacturing Co., Warren, R. I., has been engaged by M. Heineman & Co., New York, as manager of their yarn department.

INTEREST SUSTAINED

Cotton Yarns Selling Less Freely, with Firmer Prices

PHILADELPHIA, Jan. 28.—Active interest still marks the cotton yarn market, although it is stated there is not quite the general activity of so broad a scope which existed a few weeks ago. Nevertheless some good-sized sales have been put through; some as high as 100,000 pounds, while others have been offered for similar amounts calling for deliveries running up to the end of the year. One of the local houses in commenting upon the amount of business offered and done, said that they had already done a business in pounds so far this month which would equal fully 25 per cent. of their business of 1919. Much of the business offered it is impossible or difficult to place. Many spinners are not at all anxious to accept orders running too far into the year, although business has been booked up until January in certain instances.

Naturally prices have tended to show further advances under this demand. In fact, it is difficult to state just where prices are. Price advances over night are not reckoned in small amounts, and it is no easy task to keep abreast of the market, and dealers are inclined to be afraid each sale they make is too low. With manufacturers facing good orders, which they must cover with yarns, those studying the situation declare they can see nothing bearish in the future. It is admitted prices are extreme, under the effects of the law of supply and demand, but whether they have reached the limit of public absorption, they are not prepared to say. So far there has not been any marked opposition on the part of buyers of yarns or goods, because of the reported shortage of goods. Of course, the limit will be reached some day, when that is, no one knows, but it is safe to say, each day brings it nearer.

WEAVERS STILL BUYING

Weavers are not quite so active as they were, but there is still quite a little business offered, calling for deliveries running into June, July and August. Some of this it is hard to place, but here and there it has been taken care of. With limited offerings on the leading numbers, like 30s and 20s two-ply, naturally prices have shown strong advances. Carpet manufacturers are also said to be showing quite an interest in the coarser counts. On 30s two-ply warps, with $1.35 quoted, sales are noted at $1.25 to $1.30; on 20s two-ply warps, quotations are reported around $1.00; however, several good-sized sales of 25,000 to 100,000 pounds are reported at 95c.; 20s single warps sold at 92 to 95c.; and 20s two-ply skeins also sold around 95c. For 40s two-ply warps and skeins, prices now run from $2.00 to $2.10; 50s two-ply are noted at $2.40; 26s two-ply tubes sold at $1.15; with skeins at $1.10; 16s two-ply skeins have sold up to 85c., with warps at 87 to 90c.; 8s three-ply out of white comber waste sold at 62c., with good white stock held at 72 and 73c.

KNITTERS CHIEF BUYERS

Knitters are said to be showing the greatest activity in the market recently. With good business offered them in view of continued reports of a scarcity of goods, they are making every effort to place orders well ahead, some well into August. Here, again, many spin-

AMERICAN SILK SPINNING CO.
SPINNERS AND DYERS SPUN SILK YARNS
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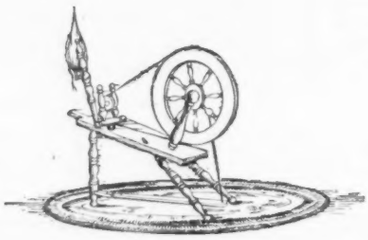

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To know cotton technically from seed to garments—to understand and appreciate the needs of individual buyers and to sacrifice personal profit if need be to keep our word to our spinner friends is an ideal that finds its realization in D'Olier Service.

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Cotton, Wool and Silk Conditioning. Fabric Testing and Chemical Analyses.

Yarn Markets—Cont'd

ners are not at all anxious to sell so far ahead, feeling that it is rather far away at such high prices. Active interest is said to be on a broad range of counts, with 30s this week reported about the leader. On 10s frame spun, spinners are asking anything from 75 to 80c. On average yarns 75 to 76c. is noted; 18s sold at 89 and 90c.; 26s are held at 95 and 96c. On 30s prices run from $1.07 to $1.15 for good grades of this count suitable for mills in this section. On 30s tying-in yarn, $1.00 has been paid. The increased difficulties experienced in securing these yarns, because of spinners turning to other yarns, it is declared will stiffen prices for this yarn, which for a long time has been a football, bringing any prices buyers were willing to pay. On 40s from $1.50 to $1.60 is noted, with 50s at $2.25 to $2.35. It looks as if these carded yarns were fast closing up the gap which existed between their prices and the extreme figures attained on combed yarns. Increased effort to use carded yarns in place of the combed yarns is reported on all sides.

COMBED YARNS FIRM

Combed yarns are reported showing scattered activity, with difficulty in getting anything like nearby deliveries. Prices have strengthened still more on offerings which are still available. Many combed yarn mills are sold as far ahead as May, with some even until July, so there is not much open for early deliveries. On single yarns prices have stiffened with 18s noted at $1.22 to $1.24; 26s at $1.30 to $1.35; 30s at $1.55 to $1.60; 40s at anywhere from $2.00 to $2.25, according to the ability of the mill to make ply yarns; 60s around $3.50; 70s at $4.00 to $4.10. On ply yarns 40s are noted at $2.65 to $2.75; 50s at $3.35 to $3.40; 60s at $3.75 to $4.00. Mercerizers are reported not doing so much business recently. Many have little to offer for early shipments, while, on the other hand, manufacturers apparently have sufficient on order to meet their present needs. As a matter of fact, it is said that spot lots of surplus yarns, running from 40s to 70s two-ply mercerized, have been offered for sale by manufacturers who find they have more yarns on hand than their actual consumption required, and who evidently prefer to take advantage of the present high prices obtainable on these yarns, rather than to make them up into goods. Many factors attribute the apparent indifference of manufacturers to the hope of bearing the market on these fine counts of mercerized yarns, but they declare they do not anticipate this will meet with any greater success than the earlier efforts of this year with the same policy.

COARSE COUNTS JUMPING

Interest Centers in Coarse Weaving and Hosiery Yarns

BOSTON, Jan. 28.—There has been a further increase in demand for medium and coarse count weaving and hosiery yarns, certain dealers leading the movement by placing liberal contracts in the South for delivery up to July, and both they and consumers paying advances ranging from 2 to 5c. on counts up to 30s, and of 5 to 10c. on finer counts. Some idea of the advance may be gained from the fact that as high as $1 has been paid for 2-20s skeins and tubes, and $1.30 for 2-30s. Knitting yarns coarser than 24s have been par-

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4's to 120's single and ply

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Cones, Skeins, Tubes, Ball and Chain Warps

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English and Italian Cotton Yarns

from 20s to 240s single and ply, all descriptions, plain, gassed or mercerized

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Superior Carded Yarns, 20s to 90s, in Cop, Bundle, Warp, etc.

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SKEINS, CONES, TUBES, BALL AND CHAIN WARPS

Market Yarns—Cont'd

ticularly active, with sales of southern frame-spun cones at 76c. and of 22s at 84c., with spinners asking 2 or 3c. more in many cases for deliveries this side of May. Most spinners are said to be well sold to the latter month, and it is freely predicted that the next big price bulge in the market will be on medium and coarse count hosiery yarns.

DEARER MONEY SEEMS UNIMPORTANT

Higher interest rates on commercial paper, due to the advance by the Federal Reserve Board in rediscount rates, seem to have had no important effect upon the cotton yarn market, yet it is well understood that there is in progress a considerable amount of buying that would once have been considered highly speculative. The business, however, is being largely done on contracts, and there are few stock accumulations of consequence; comparatively little money is needed to finance such transactions and profits are so large that a 6 per cent. rate for the money required looks cheap. At the moment there seems to be nothing in sight to prevent a further marked advance in practically all counts and varieties of cotton yarns.

COMBED AND FINE COUNTS UP AGAIN

It is almost impossible to keep pace with the steadily advancing values of combed and fine count yarns, and at the moment the situation is almost as acute on medium and coarse counts. For carload peeler cones some eastern spinners are now asking a basis of 85c. for 10s, and as high as 82c. has been paid; for 20s some want 95c., and few will sell less than 90c.; the range on 30s is $1.10 to $1.15, and on 40s from $1.60 to $1.75. The market on combed hosiery and weaving yarns is up about 5c. on coarse counts, 10c. on medium counts, and anywhere from 15 to 25c. on fine counts.

STRENGTH UNBROKEN

No Prospect of Nearby Improvement in Cotton Yarn Production

CHICAGO, Jan. 29.—The unbroken strength of the market, with an unsatisfied demand for virtually every variety of yarn, and no prospect of any improvement for months in this condition, continues without change. The usual comment of men in touch with things, whether connected with the spinning, the weaving or the knitting department of the industry, is that there is no business going on, as far as current sales are concerned, for the reason that there is nothing to sell.

It is true, of course, that as time goes on the more distant months of yarn production come upon the market, in a sense; but the prices asked for such production are such that buyers cannot, with very few exceptions, even consider them. The spinners, on their side, feel that to offer anything more in the way of contracts for delivery than they have already engaged themselves for would-be to take a highly dangerous and unnecessary gamble, and hence are not particularly concerned when buyers refuse to sign up at going prices.

Some yarn has come upon the market from a rather unusual source, growing out of the inability of mills to secure the fine yarns to which they have been accustomed, and their attempt to substitute other yarns. In some cases of this sort the knitters have found it either impracticable or otherwise undesirable to go ahead with the substitution, and have therefore decided to resell yarn

Yarns are hard to find;
Spinners sold far ahead;
Our wide experience with spinners and manufacturers may help to locate your requirements.

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WHITE and COLORED SINGLE and PLY SELL DIRECT

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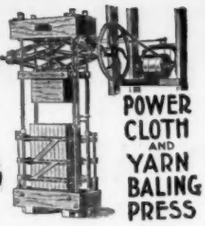
Dyers, Bleachers and Mercerizers of Cotton Yarns, Warps or Skeins
ABSOLUTELY FAST COLORS

The BOSHNELL UNIVERSAL BALING PRESSES



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This press is especially designed for baling skein yarn and as the box swings entirely out of the way it leaves the bale in a very convenient position for tying out and covering when under pressure.

It is also nicely adapted for cloth baling when box is swung out of the way and the box may be taken off or put on in a very few minutes' time with only a monkey wrench for necessary tool.

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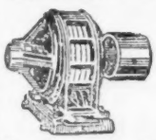

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THE WALSH & WEIDNER BOILER CO.
CHATTANOOGA, TENN.

Yarn Markets—Cont'd

bought for this purpose. Of course, such offerings are not large, but they are significant.

They indicate, necessarily, an abandonment by knitting mills of certain numbers which they have heretofore turned out as a part of their line. Such action, as it has been intimated before in this column, is a natural and almost inevitable consequence of a shortage of the better grades of yarn, and of the amazing prices of such yarns which are now quoted. The use of substitutes in the shape of coarser yarns is in many cases out of the question because of the changes in equipment which would be necessary, to say nothing of the radical change which would be involved in the nature of the finished product.

"When knitters are faced with the necessity of paying as high as $5.00 a pound for 80s, two-ply, for which they formerly paid not more than $1.40 or thereabouts, and must either pay this enormous figure or omit from their lines the numbers for which these yarns were used, I believe that from a sensible business standpoint there is only one thing to do, and that is to omit the numbers," declared a yarn man who handles some large accounts. "I have advised this action to several knitters recently, and some of them have taken my advice."

This indicates that there will certainly be a pronounced shortage in the better lines of underwear and hosiery for next spring, to mention only the most obvious result of the market conditions referred to. Others may develop later.

Schneider Textile Sales Corp.

The Schneider Textile Sales Corporation has been incorporated under the laws of the State of New York with a capital of $25,000. The company is formed to carry on a general commission business in textiles but at the first meeting of the Board of Directors it was determined that at the start its activities would be confined to yarns, tops, noils, etc. The concern has already made agreements to represent several Mid-West concerns and negotiations are under way with others. The following officers have been elected for the ensuing year: L. R. Schneider, Jr., president; H. C. Dutton, vice-president and secretary; C. A. Schneider, treasurer. It is hoped that the firm will be in a position to open its New York office about Feb. 2.

Man to Man Talks

(*Continued from page 27*)

that they deserve better and more than they get and the sure way to advance their interests is to soldier or strike inside and to upset the government and country by class revolution outside. All this lessens the purchasing power of the community and reacts unfavorably not only upon your business but upon every business.

On the other hand, if the men look upon you as their friend and champion, as well as their foreman; if they see that you are determined to do your duty by your company and at the same time to do your duty, as their leader, by them, they will unconsciously accommodate themselves to your plans and desires. It is first and last and all the time a man to man proposition. And the finest thing in this world is to be a real man yourself, while trying to help others to become real men by doing a man's work in a man's way.

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If there is an oil hole on your machinery to be oiled, we have a Thompson Oiler and a tube that will reach it.
We make tubes any length with either bent or straight stems.
The bottom of this can is soldered on from the inside nothing but heat can make it leak or take it apart.
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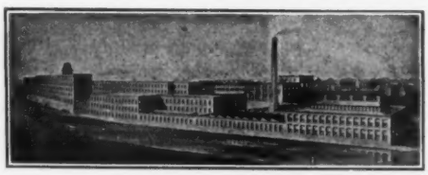

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YARN MARKETS—Continued

WORSTED YARNS OFFER NO NEW DEVELOPMENTS

Spinners Sold Ahead—Little Offered for Nearby Deliveries—Problem of Production

There is little new to be said regarding worsted yarns, inasmuch as the restricted offerings from spinners each day show a narrowing supply, so that there is little chance to develop new business. The demand, however, is as strong as ever, both for weaving and knitting yarns, and dealers are forced to see good business pass by because of their inability to accept it. One consolation probably might be in the fact that other dealers and spinners are in practically the same position, so that there is not much chance of the business being entirely taken up by their competitors. However, there is not much comfort in this thought. Prices apparently are no object to the would-be buyers, provided they can only cover their requirements in the future. As it is now, spinners generally have about all the business booked ahead they care to accept. In many instances this will keep them busy well into the summer, even up to July and August on their present production scale.

With the whole market depending upon this question of production of yarns, there seems to be little ground for hope in an improvement in the output. With mills already operating under a handicap with the present 48-hour week, now there is a persistent rumor of efforts to obtain a 44-hour week. Should this become generally adopted, it would tend to reduce still more materially the already deficient production of yarns. Conditions have been such that many spinners find themselves well behind their original schedules of deliveries, so that they have been forced to adjust themselves to these new conditions in operating ahead, and in allotting their curtailed production of yarns among their regular trade. The situation is one which has presented a serious problem to the industry. Deliveries of new equipment in spinning machinery cannot be secured for a year or more, because of the business already booked by machinery manufacturers, so that the hope for relief to be offered by increased equipment is apparently far distant.

Yarn prices to-day are practically nominal. With spinners not able to accept business in any volume to-day on yarns to be spun for nearby delivery, it is difficult to establish a market. Stock lots are not in plentiful supply, but offers are reported at extreme levels to secure yarns wherever there is the slightest hope. For that reason, the prices noted in the adjoining column are little more than nominal, as each transaction to-day stands by itself. The wool market continues in strong position, and the high prices prevailing at the recent auction of fine Australian wools, indicated the strength of this end of the market in the limited stocks in this grade. Spinners comment on the scarcity of these grades, and consequently declare it will be absolutely necessary to use the medium wools even more freely, or in fact anything which can be secured.

Knitting yarns also continue in active demand, with a similar narrowing source of supply as spinners on these yarns are booked ahead as far as they are willing to go. Knitters show little interest in prices quoted them, as they are only interested in getting their yarns. Good business is reported coming their way, and they are anxious to take care of all they can, and hence extreme quotations are noted in their bids for yarns. Particularly does this apply to 2-30s or thereabouts in quarter blood, although spinners seem to show an ever increasing reluctance to concentrate so much on these finer counts which must needs reduce the production possible on the lower counts.

QUOTATIONS

Worsted Yarns
BRADFORD SYSTEM

2-12s to 2-16s low common	2.00	—2.10
2-20s to 2-24s low ¼	2.10	—2.30
2-20s to 2-26s ¼ blood	2.40	—2.50
2-26s to 2-30s ¼ blood	2.60	—2.95
2-30s to 2-32s ¼ blood S. A	2.40	—2.45
2-32s ¼ blood	2.55	—2.80
2-20s ⅜ blood	3.10	—3.20
2-26s ⅜ blood	3.15	—3.30
2-32s ⅜ blood	3.20	—3.40
2-36s ⅜ blood	3.75	—3.90
2-26s to 2-30s ½ blood	3.70	—3.90
2-32s ½ blood	3.90	—4.00
2-36s ½ blood	3.90	—4.10
2-40s ½ blood	4.00	—4.25
2-50s high ½ blood	4.15	—4.30
2-50s fine	4.90	—5.25
2-60s fine	5.50	—6.00
2-40s Australian		Nominal
2-50s Australian, 70s quality		Nominal
2-60s Australian, 70s quality		Nominal

FRENCH SPUN

1-20s quarter	2.50	—2.65
1-20s high quarter	2.65	—2.75
1-20s ⅝ blood	3.45	—3.60
1-30s ⅝ blood	3.60	—3.75
1-30s ½ blood	4.00	—4.10
1-40s ½ blood	4.10	—4.15
1-50s	4.35	—4.50
1-40s Australian		Nominal
1-50s Australian		Nominal
1-60s fine Australian		Nominal
1-70s fine Australian		Nominal

KNITTING YARNS IN OIL, BRADFORD SYSTEM
Prices Nominal

2-8s to 2-10s, ¼ blood	2.25	—2.40
2-11s to 2-20s, ¼ blood	2.50	—2.70
2-20s to 2-30s, ¼ blood	2.60	—3.40
2-16s to 2-20s, ⅜ blood	3.00	—3.20
2-20s to 2-30s, ⅜ blood	3.15	—3.25
2-20s to 2-30s, ½ blood	3.80	—3.95

Phila. Worsted Yarn Trade Notes

J. T. Robey, worsted, woolen yarns, 232 Chestnut street, Philadelphia, has removed his offices to much larger quarters, 248 Chestnut street. Here he will occupy the entire first floor, which has been completely altered and refitted, with private office, sample rooms, bookkeeping departments, etc. Growing business necessitated this change.

WORSTED YARNS SCARCE

Fine Yarns Tend to Remain Stationary with Medium Yarns Advancing

BOSTON, Jan. 28.—The market here for worsted yarns continues completely cleaned out and it is next to impossible to obtain any spot lots of either knitting or weaving yarns at any price. New business is being placed in small volume only and with due caution though it is felt, so far as the lower counts are concerned, that demand for these is on the increase and that considering their comparatively low price, operations in them have a large margin of safety. For some months past yarns made from quarter blood and three-eighths blood wools have been greatly neglected; but the tide apparently has turned, more inquiries are coming in and a larger production is taking place at the mills. The spread in price between 2-40s, half blood, and 2-32s, quarter blood, is very large at the present time, quotations being $4.25 and $2.80, respectively, indicating a spread of $1.45. Nothing like this has

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QUALITY from quarter blood to fine Australian.
COLOR white, solid, & mixes.

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SIZE 1 run to 5 run=5 to 30 cut
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"LION BRAND"
NARROW WOVEN FABRICS
HOFFMAN CORR MFG. CO.
312 Market St. SPINNING TAPES AND SPINDLE BANDING Philadelphia, Pa

Yarn Markets--Cont'd

occurred during the last ten years. Prices for these yarns came nearest together at the close of 1913 when 2-40s sold around 90c. and 2-32s at approximately 70c., a spread of 20c. only. At the close of 1917 there was a spread of 64c. and at the end of 1918 this had fallen to 55c. only to rise, as above noted, to a divergence of $1.45 at the close of last year.

The disparity between prices paid for 2-40s and 2-32s has followed very closely the divergent tendency noted in the wool market last year. So far as it can be seen yarns made from these medium wools are likely to enhance in value and before the end of the year it is more than likely that present abnormal parity obtaining between these yarns will be corrected and the price spread approximate nearer normal. Fabrics made from medium wools are coming more into favor and at the openings early next month it is anticipated that prices for these goods will show considerable advances. The outlook at the present time seems to be that fine yarns will remain stationary while medium yarns will advance.

TOPS UNCHANGED

More Demand for Three-Eighths Blood Large Spread in High and Low

BOSTON, Jan. 28.—There is nothing new either in the top or noil market this week; both continue firm with a minimum of new transactions. Recent auctions, especially of Government crossbreds, have introduced a little uncertainty into top making establishments by reason of the low prices at which South American crossbreds were sold. Lower grade tops consequently are a little softer. Buying at the British auction of crossbreds was very limited as reserve prices were considered too high and this fact coming to the attention of the British wool authorities the unsold crossbreds are to be offered at a special auction Thursday, February 5, when, presumably, reserve figures will be lowered.

Top quotations show little change with the exception that three-eighths blood tops are in greater demand and prices tend to strengthen. The spread between high and low three-eighths blood tops is rather abnormal, amounting to about 30c. on the present market. This finer grading of materials is in itself an evidence of increased interest in this grade of wool and this inference is supported by the fact that manufacturers showing attractive fabrics made from three-eighths blood wool are able to secure immediate attention from buyers. One mill in this vicinity sold 500 pieces this week and was immediately confronted with orders that would have kept the mill busy for the next six months.

Today's quotations for tops are as follows: Fine $2.80-90; half blood $2.75-80; high three-eighths $1.85-90; low three-eighths $1.55-60; quarter blood $1.45-50; 46s $1.10; 44s 85c.; 40s 80c. As to noils fine are selling $1.12-15; half blood $1.00; three-eighths 90-95c. with quarter blood strong at 78c. Quantities available of good quarter bloods are somewhat limited and dealers are inclined to hold for stronger prices.

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QUALITY WORSTED YARNS STAMP

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COMMISSION COMBERS
Salamanca, N. Y.

Rockwell Woolen Co.
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Manufacturers of
WOOLEN and MERINO YARNS
For WEAVING and KNITTING
Heather Mixtures and Decoration Yarns a Specialty

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Keep your spindles fully equipped with the
Murdock Bobbin Holders
in the perfection of your goods.
Murdock & Geb Co., FRANKLIN MASS.

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Thrown and Spun Silk Yarns
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Silk, Woolen, Worsted, Cotton and Knitting Mills

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THROWN SILK, Tram, Organzine, Artificial Silk
YARNS
Domestic and Imported, Plain, Gassed and Mercerized, Polished and Turkey Red Cotton,
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Have You A Textile Problem ?
Put it up to
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Testing Laboratories Manufacturing Problems
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Packing cases marked with one of the 24 colors of
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Yarn Markets—Cont'd

SPUN SILK

Conditions Show No Change—Premiums Still Paid

The market transactions are scarcely such as to warrant price quotations, as figures are made to accommodate inquiry as it comes up. One thousand pounds of 2-60 was sold at $10.50 by a consumer who had this amount of surplus, and resold at $11.50 to $12.00 in small lots. The repurchase was made by the dealer just to accommodate the seller and to have something to help out old customers in a pinch. The premium accrued without effort, and was just naturally offered. Hosiery trams were reported sold at $27.50 in one instance, and the probability is that the price was paid. Anything is possible with Sinshui No. 1 at $17.40, as it was on Thursday. At the same time $27.50 is regarded by the trade as hardly a legitimate figure if true. For spun silk yarns $12.00 is regarded as a fairly legitimate price by conservative sellers, but others regard $12.00 as all right plus as much more as the traffic will bear.

Nothing new under the sun is reported from artificial silk sources. The demand is not so agressive, but there is nothing in the situation to encourage action on the part of anybody.

OBITUARY

John J. Tierney

John J. Tierney, president of Moore & Tierney, Inc., of Cohoes, N. Y., died last week after a short illness of blood poisoning. Mr. Tierney, who was sixty years of age, was known to knit goods men in all parts of the country. He entered the employ of the Erie Mills in the eighties as an operative, and by dint of industry and application of the lessons he learned in the school of experience, worked himself up to being head of the concern, at the time of his death being president and general manager. He was a promiment member of the Knit Goods Manufacturers of America and was a member of the National Association of Hosiery and Underwear Manufacturers, the New York State Knit Goods Manufacturers' Association and the Cohoes Knit Goods Manufacturers' Association. Among the surviving relatives are William A. Tierney, president of the William Moore Knitting Co., James Tierney, treasurer of the Moore & Tierney Co., and Mrs. Sarah L. Moore, treasurer of the William Moore Knitting Co.

H. Lee Mallory

H. Lee Mallory, head of the New York knit goods firm bearing his name, died suddenly at his home in Brooklyn on Thursday of last week after three days of cardiac trouble. He was born in New Haven, Conn., but at an early age came to New York and became associated with the knit goods industry, forming the firm of H. Lee Mallory Co., that specialized in the manufacture of fancy knit goods. He was prominent in club circles in Brooklyn, and was also identified with the leading knit goods organizations. He is survived by his widow, two sons, both of whom held commissions in the U. S. Army during the war, and two daughters.

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QUOTATIONS

WOOL WASTE

Fine white Australian lap waste.	Nominal
Fine white lap waste	.190 —205
Medium colored lap waste	.100 —110
Fine colored lap waste	.145 —155
Fine white Australian ring waste	.170 —175
Fine white ring waste	.165 —175
Fine white Australian thread waste	.115 —125
Hard Ends—	
Fine white	.125 —130
Medium white	.110 —115
¼ white	85 — 90
Medium colored	50 — —
Colored spinners' waste, greasy	30 — —
Australian white card waste, clean	60 — 65
Fine white card waste, clean	60 — 65
Medium white card waste, clean	55 — 60
Colored card waste, fine clean	25 — 30
Colored card waste, medium	20 — 25
Coarse colored card	15 — 18

REWORKED WOOL OR FIBER—

	Cents per lb.
Blue serge	44
Brown serge	50
Green serge	50
Red serge	47
Black serge	41
White softs	76
White flanneis and serges	74
White knits	86
Red knits	46
Blue knits, mixed	43
Silver gray knits	80
Brown knits	58
Fancy knits	43½
Black dressed knits	55
Light hoods	70
Light gray underwear	50
Fine light merinos	60
Fine dark merinos	42
Coarse dark merinos with serges	34
Coarse light merinos with serges	42
Thibets	46
Light skirted cloth	32
Black and white skirted cloth	34
Fine lt. skirted cloth	40
Brown skirted cloth	29
Dark skirted cloth	27
Black skirted cloth	29
Blue skirted cloth	29
Tan skirted cloth	48
Lt. skirted worsteds	42
Blue skirted worsteds	44
Black skirted worsteds	48
Brown skirted worsteds	40
Dark skirted worsteds	40
Wool carpets	30
Soft black carpets	33½
Mixed delaines	39

NEW WOOLEN CLIPS

Fine clips	37 — 38
Ordinary clothing clips	31 — 32

MEN'S WEAR CLIPS

Worsteds—	
Dark	44 — 45
Light	40 — 41
Black and white	47 — 48
Brown	44 — 45
Blue	53 — 54
Black	60 — 62
Edges	40 — 42

HEAVY CLIPS

Mixed Mackinaws	15½ — 16½
Mixed overcoatings	19 — 23
Brown chinchillas and cheviots	34 — 35
Blue chinchillas and cheviots	34 — 35
Black chinchillas and cheviots	33 — 34
Oxfords	32 — 33
Black and white	32 — 33
Mixed lights	15 — 16
White chinchillas	— — 68
Brown lights	19 — 20
Shawls	— — 15

COTTON WARP CLIPS

Dark unions	6½ — 7
Light unions	10 — 11
Serges, black and white	14 — 15
Serges, light	13 — 14
Palm Beach	18 — 19
Delaines mixed colored	7½ — 8
Black astrachans	— — 13
Mixed	— — 13
Black cloakings	12 — 13
Blue cloakings	11 — 12
Brown cloakings	11 — 12
Mixed cloakings	6 — 7

OVERCOATINGS

Indigo	34 — 36
O. D.	28 — 30
O. D. worsted	58 — 60
Cadets	49 — 50

FLANNELS

Blue	41 — 42
Black	41 — 42
Green	41 — 42
Light	41 — 42
Tan	41 — 42
Mixed, with silvertone	22 — 23
Scarlet	Nominal
Steel Gray	29 — 30
Dark	29 — 30
Fancy	29 — 30

WOMEN'S WEAR CLIPS

Serges—	
White	Nominal
Blue	46 — 47
Black	51 — 52
Brown	53 — 55
Green	53 — 55
Maroon	45 — 46
Light	Nominal
Tan	58 — 60
Light blue	51 — 55
Mixed dark	24 — 25

OLD WOOLEN RAGS

Merinos—	
Coarse light	19 — 20
Fine light	38 — 39
Coarse dark	13 — 14
Fine black	23 — 24
Fine dark	27 — 28
Small	5 — 5½
Serges—	
Light	34 — 35
Brown	30 — 31
Blue	25 — 26
Black	25 — 26
Red	28 — 29
Green	36 — 37
Flannels—	
Fine white	50 — 51
Coarse white	50 — 51
White No. 2	28 — 29
Red	28 — 29
Blue	18 — 19

DELAINES AND LINSEYS

Skirted	7 — 8
Red flannel	— — 7
Best plaids	— — 7
Best brown	— — 7
Best blue	— — 7
Common gray	4 — 5
Knit—	
White	53 — 55
Blue, dark	27 — 28
Blue, light	24 — 25
Blue, mixed	25 — 26
Black, trimmed	36 — 38
Black, untrimmed	32 — 34
Red	28 — 29
Brown	32 — 34
Light gray	23 — 24
Hoods—	
Light	38 — 39
Mixed hoods	22 — 23
Silver gray knit	30 — 31

SKIRTED CLOTHS

Skirted worsteds—	
Light	22 — 23
Black	29 — 30
Blue	25 — 26
Dark	20 — 21
Brown	22 — 23
Skirted cloth—	
Fine light	13 — 14
Light	9½ — 10½
Blue	8 — 9
Dark	7 — 7½
Plain black	8 — 9
Skirted, tan kersey	29 — 30
Skirted, tan covers	27 — 28

ADVANCES NOTED IN GRADED RAG STOCKS

Slow Developments in Piece Goods Holding Back New Woolen Clips and Old Woolen Rags

The substitute market has been quiet during the week to a degree not usual at this time of year. During the last few weeks of last year and the fore part of this month it was more or less confidently expected that larger business would be coming forward more heavily from consumers. But as heavyweight operations are not in full swing, for the reason that important mills are still engaged on lightweight deliveries, the expansion anticipated has not been realized. Buying through the sample period was not heavy. Rumors have been current for weeks that overcoatings would be produced in less volume, and if light buying in sampling tells anything it shows a falling off in demand for stocks of the descriptions that would be used in such constructions. It is to be remembered that the piece goods situation is fearfully slow in developing, that few overcoatings of importance have been offered to this time, and that the offerings to lead the market are unusually delayed this year.

GOOD GARNETTED DEMAND

Certain descriptions are scarce, besides, and manufacturers, as a rule, have enough stock at hand to meet immediate demands. Then, too, being not

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SPECIALIZES YOUR REQUIREMENTS
Woolen Rags
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Buffalo, N. Y.
Careful Graders of
WOOLEN RAGS
DELAINES—LINSEYS

American Wool Stock Co.
(R. Goldstein & Son, Proprietors)
WOOLEN RAGS
Advise grades you require.
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New Woolen Clips
"None Better Made"

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Reliable Graders of
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FINE REWORKED WOOL
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overcertain about the exact trend of probable needs they are indisposed to operate freely. Garnetted stock demand is keen and general, however, and has prospect of continuing so long as wool replacements threaten to be at advanced levels.

OLD WOOLEN RAGS DULL

The scarcity of certain descriptions is not being ameliorated to any extent in an analysis of present collections of old woolen rags. Graders are not inclined to sort at a loss, and they say the prices realized on graded stock from the mills are low on a rising market and hence threatened losses must be faced. A rise in graded stock has been going on the past few days, and yet no one seems to know whether the elevation will restore the balance or will interfere further with business.

NEW CLIPS UNCHANGED

Evidences are few of material changes in the new clip market. Shipments have been made, but operations are generally listless. For a time the principal activity, outside of the liquidation of Government olive drab clips, was restricted to light rags in worsteds and flannels. During the last few weeks grades of dark and mixture rags have been in better request, though orders are not large, as a rule.

SUBSTITUTES INACTIVE

England Setting the Pace in Substitute Consumption of American Rags

BOSTON, Jan. 28.—The substitute market is laboring along in a somewhat depressed frame of mind, but entertaining certain expectations that when the goods openings occur next month some stimulus may be injected into the recovered wool industry. In the use of substitutes England is setting the pace strongly and is willing, apparently, to pay really high prices for rag materials to meet the demands of her woolen manufacturers. It seems strange to men in this market that the industry here is so backward; but the explanation usually is given that our people will only take fine fabrics, that they have the money to pay for them, and that, to some extent at least, their judgment as to the value of the fabric is becoming somewhat warped by the propaganda now going on under the name of Pure Fabric Legislation. There seems little doubt but that English buyers are taking out of this market large quantities of desirable worsted rags, and also to an increasing degree black and blue cloth. Substitute manufacturers having stocks of worsteds have been approached, in some instances, and offered prices for these materials that would show them a handsome profit.

In the rag market proper the extraordinary quotations for mixed softs and rough cloth, 23c. and 13c., respectively, are disturbing the graders. They say they won't buy at these figures, and with a very slack domestic demand they are probably speaking with wisdom. But the underlying strength is found fundamentally in the foreign demand for the graded materials taken from the cloths. More interest has also been taken in fine light stocks; but the whole market, as related to domestic consumption, is in a disturbed condition. Quotations show a wide range in some stocks, a matter of 3c. or 4c. in the same material, say, fine dark merino, offered by different houses. Grading operations are not by any means rushing at the present time.

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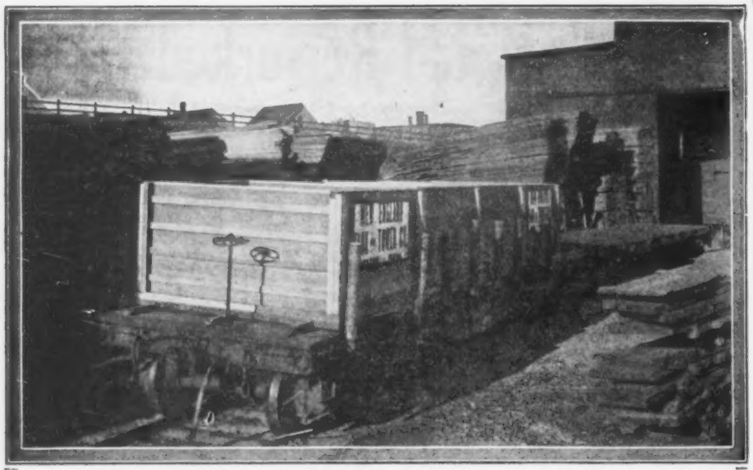

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FOREIGN MARKETS

OPTIMISM GOES WITH CAUTION IN BRADFORD

Lower Prices Ruling for Tops—Users Making Active Enquiries—Trade with U. S. Improving

(From our Regular Correspondent)

BRADFORD, Eng., Jan. 7.—The Bradford market towards the raw material end is dominated by a spirit of caution, engendered by the December fall in values. Practically since the end of November there has been no business of any weight in tops, and it is an axiom in this center that if prices are not rising they are falling. As a matter of fact, not only medium and coarse crossbred tops but merino and fine crossbred qualities can be bought cheaper than a month ago. In the case of merinos, topmakers are still quoting the same rates, but if a buyer wished to operate he would be able to get in on a lower basis. Average quotations range round 12s 6d for 60s super, but orders have been placed at 6d and 1s 0d below this figure in odd cases.

The cessation of overtime working in the woolcombing section has failed to influence the market for the time being. In fact, one of the features of the past few weeks has been the change in the output of tops. A couple of months ago topmakers were talking of February-March delivery, and declaring that they were completely booked up, though shrewd buyers had a feeling that a margin was being kept back to play with. As a matter of fact, substantial weights can be bought now for February-March delivery, and there are quite a number of spot lots to be had at present prices. This shows clearly that the output of tops is now sufficient to meet current spinners' demands.

WILL PRICES REACT?

In the case of 50s crossbred and below, the decline has been quite marked. Fifties, for instance, which reached 82d, are now quoted at 76d; 48s carded, which reached 62d, have gone to 57d; 46s carded have shown the greatest decline, from 56d to 47d; while 40s prepared, after reaching 42d, are weak at 38d, and could be bought in some cases at 1d to 2d below. End-of-the-year influences and the check to raw material values have brought about an easing in values which is not unwelcome to most sections of the trade.

At the same time, the past day or two has been marked by a perceptible increase in inquiry, particularly for fine tops. The London sales open on January 12, and it is noteworthy that only 100,000 bales are to be offered on inspection, and 42,000 bales on description. Those in charge of the offerings are evidently determined that the market shall not be flooded with wool while Continental buyers are holding aloof. The outlook for raw material depends very largely upon the attitude of French and Belgian firms, and advices from the Continent are to the effect that a hand-to-mouth policy will rule until exchange fluctuations subside. If there is only a flagging support from the Continent, the home trade may be able to buy cheaply. On the other hand, the trade is in a better position to hold wool than it was a month ago, and there are those who hold that a firmer tone will be shown at the Sales. Users have evidently business to place, and there is no doubt that the first sign of a reaction would bring them smartly into the market and remove any easier tendency in fine tops.

In the absence of support from France and Belgium, the raw material market has got back to somewhere the same position it was before the restrictions on the export of raw material were removed. The existing machinery is unable to cope with the heavy weights of wool coming forward, and some help must be rendered by France, Belgium or Germany. This has weakened the inflated prices for fine tops, and accentuated the position of medium and coarse crossbreds. An entirely different atmoshere prevails in the yarn section, however, which is yet another stage removed from the raw material end. Botany yarns are, if anything, against the buyer, and it would be difficult to place an order for anything like reasonable delivery. The price for 2/60s Botany is 20s 0d per lb. Singles are not relatively so strong as twofolds, and 1/60s Botany (70s-80s tops) could be bought at 45s 0d.

In the case of crossbred qualities, there has been a lull in business during the past few weeks, but spinners are well employed, and except in individual cases there is no disposition to lower quotations. The finer counts, indeed, are a little dearer. Twofold 40s (56s crossbred) cost 12s 0d per lb. and 2/40s medium (50s pick hogg) cost 10s 3d, these showing a slight advance on recent rates. There has been a little more business passing on export account recently, and German buyers have shown a tendency to nibble.

In addition to the intense demand for piece goods on home trade account, there is a strong call for fabrics abroad, and the past three months have seen a big improvement in shipments to the United States. The favorable exchange makes this country an excellent buying market for the States. In December the exports from the Bradford district to America were £754,778, compared with £716,217 in November, and the exports of tissues were valued at £172,094, which is the best total since 1914, and compares with £121,096 in November. Fancy woven woolens and dress goods were the most important classes. The returns were also noteworthy in December because the totals recorded for noils and wastes and for yarns were a record for all time. No less than £116,853 worth of noils and wastes was exported, and £60,079 worth of yarns.

The figures for the complete year 1919 are interesting. The total exports have been £5,010,213, of which over £4,000,000 worth was exported during the last six months of the year. In 1918 the total was £1,479,352, and in 1914—the best year on record—£6,238,322. Generally speaking, values are about three times the pre-war level, but even after discounting the rise in values the returns during the past six months have been heavy. The exports of wool in 1919 have been £1,333,327 (compared with £1,862,534 in 1914); of noils and wastes £641,656 (compared with £325,104 in 1914); of worsted and mohair yarns, £225,144 (compared with £363,745 in 1914); and of tissues, £783,275 (compared with £2,129,331 in 1914). In other words, the trade shows redistribution which adversely affects fully-manufactured goods, two favors raw material, eight semi-manufacturers.

LANCASHIRE COTTONS SOMEWHAT UNSETTLED

Slight Falling Off in Business, But No Indication of Nearby Slump—Yarns Very Firm

By *Frederick W. Tattersall*

MANCHESTER, ENG., Jan. 8.—During the past week there has been some falling off in business in the market and in certain quarters the position has been rather more unsettled. Values, of course, are on an exceedingly high level and any easier tendency in the raw material soon has an effect upon the attitude of buyers of yarn and cloth. Prices are said to be very dangerous, but similar statements were made a couple of months ago when rates were much lower than at the moment. There is no belief in any immediate slump in values, and on the whole fresh trade is only restricted as a result of the inability of spinners and manufacturers to absorb more contracts. Producers who have been in a position to grant fairly early delivery have had plenty of opportunities of selling and numerous buyers have searched the market very vigorously for stock lots. After the marked rise in raw cotton rates during the past month some reaction is only natural, and during the last day or two a fair amount of profit taking has occurred in Liverpool, but the movement now seems to be over. Spinners experience great difficulty in securing what they want when they visit their brokers in Liverpool, and the basis remains very stiff. Very bullish opinions are held with regard to the Egyptian staple. Statements have been made this week to the effect that prices will go considerably higher before the end of the season, and in view of the very active demand this development is not at all unlikely. All spinners and manufacturers continue to derive great strength from the contracts on the books, and it is quite useless for our customers to make counter offers to quotations given out.

LARGE CLOTH INQUIRY MAINTAINED

There has been no lack of inquiry in piece goods this week, but some leading buyers have not operated quite so freely as recently. The utmost difficulty is being experienced in securing the delivery of goods within a reasonable time, and this fact together with very high prices results in some hesitancy in placing orders of weight with makers. The undercurrent of demand, however, remains distinctly healthy, and it is quite evident from the business offering that many of our outlets abroad are still hungry for supplies. An irregular trade has transpired for India. White shirtings, dhooties and jaconets have come off fairly free for Calcutta. Gray shirtings and light bleaching fabrics have also been sold in fair quantities for Bombay and Karachi. In some quarters there has been an improved demand in gray staples for Madras. It is said that that outlet has been receiving large quantities of goods from Japan, but now that imports are restricted dealers are turning to Lancashire makes. Operations of importance for China have not been in evidence, but of course that outlet is well bought and seems to be satisfied with her purchases for the present. Isolated sales have been put through in sized goods for Hong Kong and Singapore. There is no end to the demand for the Near East outlets, and quite an encouraging turnover has taken place for Egypt and the Levant. Some useful lines have been booked for the River Plate. Of the South American market Brazil appears to be the best. Printing cloths have been very firm in quotation. Full prices have had to be paid for all kinds of shirtings. Drills and domestics have moved off fairly free for the home trade.

YARNS VERY FIRM

The yarn market has not been particularly active this week and business in several directions has been blocked by the stiff and independent attitude of sellers. Buyers complain of the indifference of spinners as to quoting or entertaining fresh business on any terms whatever. Now and again spinners instead of giving out prices ask the buyer what he is prepared to pay. A rather limited turnover has transpired in American qualities for home use, but rates are dearer on the week, especially in the better qualities of fine counts. There has been some falling off in the turnover in export descriptions. Prices and delivery are now exceedingly awkward to arrange and a good deal of business has had to be turned down as impracticable. India is still in need of 40s and 50s but cannot find producers who are in a position to complete contracts within the specified time. Prices in Egyptian yarns continue to harden from day to day and sellers have been very strong at record rates. In certain counts and qualities it has been difficult to get sellers to quote. Supplies upon the market are decidedly scarce.

GOVERNMENT TRADE RETURNS

The importance of the Lancashire cotton industry to Great Britain from a national point of view can scarcely be exaggerated, and it may be pointed out that during 1919 the exports of cotton manufactures were valued at £240,864,832 out of a total export trade for the country of £798,372,971. During the year we shipped 162,665,500 pounds of yarn, against 101,711,400 pounds in 1918 and 133,151,300 pounds in the year before. The important increase in 1919 on the previous year is chiefly due to larger takings by the Netherlands and India. The figures for the United States were 3,890,400 pounds, against 3,992,700 pounds in 1918 and 10,316,800 pounds in 1917. There was a rather serious decline in the shipments to France, principally owing to the fall in the rate of exchange. With regard to piece goods, our exports during the twelve months amounted to 3,528,756,500 yards, against 3,695,772,000 yards in the previous year and 4,978,237,000 yards in 1917. It may be pointed out that before the war in 1913 our exports amounted to the big figure of 7,075,558,000 yards. During the past year there has been a welcome increase in the takings of China and several European countries. Quite recently there has been a big improvement in the shipments to Egypt and more encouraging figures are now being issued with regard to the South American outlets. The figures for the United States are 40,832,300 yards for last year, against 29,326,300 yards in 1918 and 67,604,100 yards in 1917.

As previously mentioned a few weeks ago, Lancashire cotton spinning employers decided to pay a bonus to the operatives during January, February and March, the aggregate payment being about £1,500,000.

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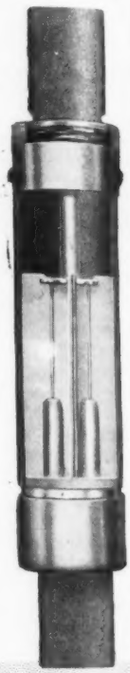

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RAW MATERIALS

COTTON RULES STEADY IN NARROW MARKETS

Liverpool Shows Firmness—Small Spot Demand, But No Pressure of Offerings

The action of the cotton market during the past week has suggested a divided sentiment in speculative circles and a pretty well balanced spot situation at the present level of prices. There has been nervousness over foreign exchange rates, financial, and general conditions, which has tended to restrict buying in anything more than a hand to mouth way, but there has been no selling pressure of consequence except for occasional spurts of liquidation, and prices, on the whole, have been pretty well maintained around the 36 cent level for March contracts and in the neighborhood of 30 cents for October.

During the earlier part of the week, there was evidently a feeling in some quarters that an easier tone was developing in the goods market. This was due to reports of offerings by second hands at concessions and a lull in the primary markets. But later in the week this feeling seemed to be subsiding, as the advance in money rates had evidently failed to uncover any weakness among holders either of goods or raw material and there were rallies from early week declines owing to the continued firmness of the Liverpool market. To some extent this was due to declines in the rates of foreign exchange, but the difference between the two markets widened sufficiently to bring in considerable Liverpool buying, although no improvement was reported in the demand from the trade. Indeed, it is claimed in some quarters that both domestic and British spinners are pretty well covered and the failure of spot business to increase during the last half of January has suggested that shippers had provided pretty full for their needs on the buying movement of the late autumn and early winter. At the same time, no pressure of spot offerings has developed and prices have been well maintained on the comparatively small volume of business.

COTTON STATISTICAL DATA

FLUCTUATIONS OF FUTURES

	Closed Jan. 22.	For week—High.	Low.	Closed Jan. 28.	Chg.
Jan.	38.10	38.40	37.60	....	....
Feb.	37.10	....	....	37.00	—.10
Mar.	36.25	26.50	35.65	36.48	+.23
Apr.	34.75	....	....	35.10	+.35
May	34.25	34.65	33.55	34.60	+.35
June	32.85	32.60	32.60	33.10	+.25
July	32.30	32.65	31.59	32.60	+.30
Aug.	31.30	31.50	30.93	31.50	+.20
Sept.	30.60	30.40	30.40	30.75	+.15
Oct.	30.05	30.13	29.33	30.08	+.03
Nov.	29.60	....	....	29.65	+.05
Dec.	29.45	29.50	28.10	29.62	+.17

SPOT FLUCTUATIONS FOR WEEK
(MIDDLING)

	New York.	New Orleans.	Liverpool.
Friday, Jan. 23	39.30c.	40.00c.	27.66d.
Saturday, Jan. 24	39.25c.	40.00c.	Holiday
Monday, Jan. 26	39.15c.	40.00c.	27.51d.
Tuesday, Jan. 27	39.05c.	39.88c.	27.38d.
Wednesday, Jan. 28	39.50c.	39.88c.	27.95d.
Thursday, Jan. 29	39.5fc.	39.88c.	28.66d.

SPOT FLUCTUATIONS AND STOCKS

	Spot Prices.	This Week.	Last Year.
Galveston	42.50c.	277,632	306,114
New Orleans	39.88c.	448,473	440,686
Mobile	39.00c.	26,906	25,860
Savannah	39.50c.	259,208	274,089
Charleston	39.50c.	59,719	60,387
Wilmington	....	56,263	55,378
Norfolk	....	94,635	97,968
Baltimore	40.00c.	4,750	9,350
Augusta	39.25c.	184,551	178,879
Memphis	40.50c.	282,580	357,918
St. Louis	40.50c.	7,317	24,576
Houston	42.00c.	225,349	301,402
Little Rock	39.50c.	51,763	44,395

New crop preparations in the earliest section of the belt are being delayed by unfavorable weather, but the season is not yet far enough advanced for this to afford any particular threat against the ultimate yield. The unfavorable conditions, however, may have something of a sustaining influence on the price views of remaining old crop holders, and there is a feeling in some circles here, that when conditions become more favorable and farm work actually begins, holders will become easier to deal with. The fact that futures are below a parity, and the big discounts on the later months, checks selling on this view, just as the continued firmness of goods has a tendency to check selling on the expectation of a decline in commodity values as a result of deflation. Both these views have taken strong enough a hold on the imagination of traders, however, to discourage speculative buying for long account, and the small volume of business reflects a disposition to wait for more settled international trade conditions, easier money rates or a nearer view of new crop prospects.

The feeling in local trade circles is that prices have been high enough this season to stimulate production, but, aside from weather uncertainties, there is scarcity of labor, the boll weevil situation, and the reported scarcity of effective fertilizer, which all tend to complicate the prospect. Advices received here from the South are more or less conflicting as to acreage prospects, but diversified farming is being urged all over the belt, and it remains to be seen how far the producer has been educated to the idea that it is better to receive a high prices for a small crop than lower prices for a large one. The following table will show Thursday's closing prices in the leading spot markets of the country with the usual comparisons:

Market	Jan. 22	Jan. 29	Change	Last Year	Sales
Galveston	42.50	42.50	....	28.25	7,761
New Orleans	39.75	39.88	+13	27.50	14,608
Mobile	39.00	39.00	....	23.50	122
Savannah	39.50	39.50	....	30.00	840
Norfolk	38.75	39.00	+25	34.00	862
New York	39.10	39.50	+40	26.70	1,035
Augusta	39.25	39.25	....	25.50	734
Memphis	40.50	40.50	....	28.00	8,400
St. Louis	40.50	40.50	....	....	....
Houston	41.75	42.00	+25	27.50	12,391

The following differences on and off middlings are given as compiled from the reports received by the New York Cotton Exchange late on Wednesday. The grades marked ** are not deliverable on contract.

	Dallas.	Memphis.	Montgomery.	Augusta.	Average.
WHITE GRADES.					
M. F.	3.00†	3.50†	2.75†	3.50†	3.33†
S. M. G.	2.50†	2.75†	2.25†	2.50†	2.63†
G. M.	2.00†	2.00†	1.75†	2.00†	2.00†
S. M.	1.00†	1.00†	1.00†	1.00†	1.13†
Middling	....	....	....	....	....
S. L. M.	2.50*	2.00*	2.50*	2.50*	2.53*
L. M.	7.00*	7.00*	6.00*	6.00*	6.80*
**S. G. O.	11.00*	9.00*	8.50*	8.00*	9.43*
**G. O.	13.00*	11.00*	11.00*	10.00*	11.80*
YELLOW TINGED.					
**S. G. M.	1.00*	Even	1.00*	1.00*	1.14*
G. M.	2.00*	2.00*	2.00*	2.00*	1.98*
S. M.	3.00*	4.00*	3.00*	4.00*	3.20*
**Middling.	5.00*	5.00*	4.50*	6@00*	4.80*
**S. L. M.	7.00*	6.50*	6.50*	9.00*	7.05*
**L. M.	10.00*	9.00*	9.50*	11.00*	10.05*
YELLOW STAINED.					
G. M.	4.50*	5.75*	4.00*	4.50*	4.63*
**S. M.	6.00*	6.00*	6.00*	6.50*	6.03*
**Middling.	7.00*	7.00*	8.00*	8.00*	7.45*
BLUE STAINS.					
**G. M.	7.00*	5.00*	5.00*	7.00*	5.70*
**S. M.	8.00*	6.00*	6.50*	8.00*	6.78*
**Middling.	9.00*	9.00*	8.00*	9.00*	8.25*

* Off. † On.

Cotton Trade Notes

Delta cottons for October shipment (new crop) were offered to New England spinners last week, representing about the earliest offering of new crop staple on record. The prices quoted for October shipments of new crop are fully 10c. below prices for current shipments. Offerings have been largely confined to 1 1-16 inch and have not resulted in sales, so far as known.

It is reported that the first shipment of potash to reach that port direct from Germany since the war was received at Philadelphia on Wednesday. It amounted to about 3,000 tons.

The Government cotton crop reports for the coming season will be issued on the following dates: July 2, August 2, September 1, and October 2, at 11 o'clock These are the regular monthly reports on condition The final estimate of the coming crop will be issued at 4 P.M. on December 11th.

One of the private telegrams received here from Memphis on Thursday said there was not a good inquiry for spots but that holders showed no disposition to sell. Savannah, Ga., said that holders were inclined to sell, but that demand was poor and there was a lull in business for the first time this season.

A New Orleans message said that interests in the market there were looking for ocean freight room for 30,000 bales of cotton for direct shipment to Hamburg.

J. H. Mills, president of the Georgia Farmers' Union says he does not feel the slightest uneasiness about the agricultural situation this year, especially in middle and South Georgia. He says the farmers are going to plant less cotton and work it on a more intensive scale.

Belgian cotton mills are said to be supplied with enough raw cotton to last them for four or five months. The French mills are in a less favorable position and are reported working from hand to mouth.

COTTON WASTE FIRM

Flat Priced Stocks Sold Well Ahead—Egyptian Combers Below Peelers

BOSTON, Jan. 28.—The cotton waste market is firm to strong but with a generally good feeling prevailing among dealers in all classes of wastes. The market recently has passed through three stages: first the contracting; then came a lull and readjustment of the situation; and lastly an increase in activity in all directions but chiefly in the selling of contracts for the year to cover most of the flat-priced stocks. The amount of contracting done in these latter materials is said to be somewhat abnormal for this season of the year, and it would almost look at time of writing as though dealers in these commodities might have comparatively little to do for some time to come, finding themselves in a similar condition to, say, the worsted yarn men whose contracts have been placed for months ahead. Percentage stocks have not followed this course of trading, as consumers of these commodities are more inclined to buy according to their immediate needs.

The market generally seems to be more than usually interested in Egyptian combers and strips. When the cotton market commenced to rise rapidly in November, American importers immediately jumped into the Alexandria market and bought largely and were fortunate enough to obtain large quantities at prices which on to-day's market for Egyptians are very low. Present quotations for Egyptian combers and strips range from 63 to 65 per cent., and in the opinion of many dealers are a good buy from the consumer's standpoint. Threads continue quite firm; rovings and spinners are scarce and good threads find an easy market among dealers.

Waste Exchange Notes

The usual monthly meeting of the Exchange will be held Tuesday, February 3, at 11.30 a. m., with luncheon at 12.30 p. m. The speaker, Chester T. Crowell, of New York City, for a number of years news editor of the *Mexican Herald*, will take for his subject "American Rights in Mexico," in which he will discuss a number of interesting matters relating to export, transportation and general business conditions in the sister Republic.

H. I. Benedict, secretary of the Exchange, is still confined to his home and is apparently not making very rapid recovery. Thomas Cox has assumed the duties of secretary in the interim.

Under arrangement formulated by President Greene, prominent members of the Exchange contribute in turn a weekly letter to the membership. Considerable literary ability has been displayed and all kinds of sly jokes and unexpected puns have appeared in print. Constructive suggestions as to the activities and possibilities of the Exchange have, in the main, been side-tracked to make way for a more or less labored attempt at brilliancy, something light, easy, humorous. The last letter, however, recognizes that the Exchange has undoubtedly done certain useful things, notably its framing and adoption of a uniform trading contract. The establishment of a permanent arbitration board of constantly changing personnel is also commended.

QUOTATIONS

COTTON WASTE—MILL RUN
(See Note)

	Per cent.
No. 1 peeler comber	70 — 75
Short peeler comber	60 — 70
No. 1 Egyptian comber	70 — 75
Short Egyptian comber	60 — 70
White card strip	45 — 55
No. 2 white card strip	35 — 45

	Cents.
Dirty card fly	3 — 3½
Dirty picker motes	2 — 3
Card and spinning sweep	3 — 3½
Weave sweeps	2 — 3
Soft white threads	11 — 12½
Hard white threads	10½ — 11
Soft colored threads	10½ — 11
Hard colored threads	9½ — 10

COTTON WASTE—GRADED STOCK
(See Note)

	Per cent.
Sakelarides comber	80 — 90
Sakelarides strips	90 —100
Egyptian comber	70 — 80
Egyptian strips	67 — 72
No. 1 white peeler comber	80 — 85
Peeler strips	65 — 70
No. 1 white strips	60 — 70
No. 2 white strips	57 — 65
No. 1 white spinners	95 —100

	Cents.
No. 1 soiled card	12 — 16
No. 1 oily card	7 — 9
No. 2 oily card	6 — 8
No. 1 white willowed fly	11 — 15
No. 2 white willowed fly	9 — 11
No. 1 cleaned white picker	9 — 11
No. 2 cleaned white picker	6 — 7
Hard white threads	13 — 14
Hard colored threads	13 — 14

LINTERS

	f.o.b. N.Y.
Texas, clean mill run	— nom.
Texas A	— nom.
Eastern, clean mill run	— — 8- 9
Staple linters	— — 9-10

NOTE.—*Percentage based on prices of New York Middling Uplands spot cotton for day of shipment.*

Most Efficient Boiler Feeder

and also the most economical in maintenance because the

LUNKENHEIMER Automatic Injector

In addition to delivering more water per pound of steam than other injectors, has tubes made of a special hard bronze which is peculiarly resistive to the severe erosive action of the saturated flow at high velocity.

Besides a worn or broken part does not necessitate discarding the entire device, since all the parts of the Lunkenheimer Automatic Injector are made to gauge and are interchangeable.

For efficiency, service and economy specify Lunkenheimer and insist on having the genuine. Your local dealer can furnish them; if not, write us. Write for descriptive Booklet No. 504 —Ed.

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Largest Manufacturers of High Grade Engineering Specialties in the world
CINCINNATI
NEW YORK CHICAGO BOSTON LONDON

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No single air-conditioning system will apply to all requirements of humidifier. There is a right kind for your particular problem. Note our complete line.

Central Station Equipment for

1. Ventilating
2. Cooling
3. Heating
4. Humidifying
5. Constant Re-gain
6. Air cleansing

Fan Driven (High Duty) Humidifiers for

1. Local ventilating, and super capacity in air conditioning. 2. Wall ventilating type.

These with Electrically driven fans.

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1. General Mill use, best adapted to old or low posted rooms. 2. Special applications, such as direct application of moisture on pickers,—laps, a further refinement being the Turbo-Sprayer. 3. Compressed air cleaning as a by-product.

Spray Type Humidifiers

Same as High-Duty, without fans. Not as effective as High-Duty. Recommended for special cases only.

Humidity Regulating and Indicating Apparatus

Parks-Cramer Company

Engineers & Contractors
Industrial Piping and Air Conditioning
Fitchburg Boston Charlotte

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Manufacturers of Various Steel Products

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Chicago	Philadelphia	Eliza Furnaces & Coke Ovens
Cincinnati	San Francisco	Soho Department
Cleveland	St. Louis	Aliquippa Works
Seattle	Washington, D. C.	

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PITTSBURGH

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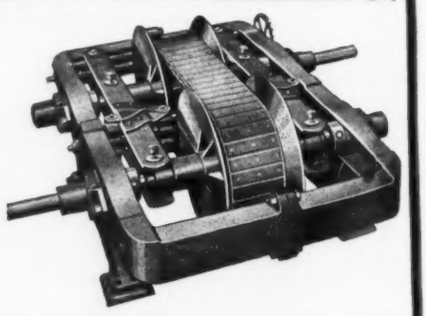

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Variable Speed Transmission

87% *of the textile mills that have installed the Transmission have come back with repeat orders. They have found that speed control aids them immeasurably in production.*

REEVES PULLEY COMPANY

Columbus, Ind.

RAW MATERIALS—Continued

WOOL QUOTATIONS

OHIO, PENNSYLVANIA AND WEST VIRGINIA.

Washed.		Unwashed.	
XX & abv.	75— 80	Fn. cloth'g..	70— 72
Fine del...	90— 95	Fine del.....	89— 90
		½ bld.....	85— 86
		⅜ bld.....	70— 71
		¼ bld.....	65— 67
		¼ bld, low..	63— 65

MICHIGAN AND NEW YORK.

Unwashed.		Unwashed.	
Fine del...	..— 73	½ bld.....	74— 77
Fn. cloth'g	..— 64	¼ to ⅜ bld.	67— 70

INDIANA, MISSOURI AND SIMILAR.

½ bld.....	71— 75	¼ bld.....	..— 60
⅜ bld.....	65— 67	Common	..— 54

CALIFORNIA (SCOURED BASIS).

Sp'g northern		S'th. 6 and 8	
& 12mo.1	65—1 70	mo 1	35—1 40
Sp middle		Fall free...1	30—1 35
counties.1	45—1 50	Fall defects	95—1 00
S'th 12mo1	55—1 60	Carbonized 1	45—1 55

TEXAS (SCOURED BASIS).

Fine 12mo1	65—1 70	Fine fall...1	20—1 30
Fine 8mo.1	40—1 45		

PULLED—EASTERN.

Scoured.		Scoured.	
Fine 1	85—1 90	Lambs' Bs.1	20—1 25
A super..1	60—1 65	Cmbgs. fin..1	35—1 40
B super..1	25—1 30	Medium ...1	25—1 30
C super..	85— 95	Coarse	95—1 00

MONTANA, IDAHO AND WYOMING (SCOURED BASIS).

Staple, fin.1	95—2 00	Fine cl'thg.1	65—1 70
Do.¼ bld.1	85—1 90	Fine med..1	60—1 65

UTAH (SCOURED BASIS).

Fine ....1 85—1 90	Fine med..1 55—1 60

COLORADO AND NEW MEXICO (SCOURED BASIS).

Fine 1	85—1 90	½ bld.....1	80—1 85
		No. 4.....1	05—1 10

NEVADA (SCOURED BASIS).

Fine med.1 70—1 80	Fine cl'thg.1 65—1 75

MOHAIR.

Domestic.		Foreign.	
Combing..	70— 72	Turkey	..— ..
Carding ..	58— 60	Cape	63— 66

FOREIGN CLOTHING AND COMBING.

Cape (scoured):		Montevideo	
Combing,		(greasy):	
choice.2	10—2 25	¼ bld...	55— 60
Combing,		High	58— 61
good..1	95—2 05	⅜ bld...	75— 80
Clothing,		½ bld...	85— 87
choice.1	50—1 60	Merino ..	88— 90
Clothing,		Buenos Aires	
good..1	35—1 45	x-breds:	
Australian:		Lincoln ...	60— 65
Fine ..2	60—2 70	High ¼ bld	53— 58
64s 2	40—2 50		
56-58s .1	55—1 60		

FOREIGN CARPET (Grease Basis)

Aleppo:		Khorassan:	
Washed..	56 —51	1st clip...	.. —..
Whd. col	40 —41	2nd clip..	.. —..
Angora....	.. —55	Mongolian:	
Awassi....	.. —55	Urga	42 —44
Karadi....	.. —55	Manchu'n.	36 —38
Bokhara:		Scotch Blk.	
White...	.. —..	face	32 —34
Colors...	.. —..	Camel's hair	
China:		(Russian)	.. —55
Comb'g..	41 —43	Servian skin	
Wld. ball	40 —42	wool	.. —..
Wld. open		East India:	
ball...	38 —40	Gray	30 —35
Willow'd	37 —40	Washed:	
Unwld...	28 —32	Vickan'r..	55 —58
Szechuen	36 —38	Joria	.. —..
Cordova...	28 —30		
Donskoi:			
Comb'g..	.. —..		
Kand'hr.	50 —51		

AUCTIONS DOMINATE SENTIMENT IN WOOLS

Foreign Markets Firm—Crossbreds the Battlefield and Problem—Wool Growers Apprehensive

BOSTON, Jan. 28.—Summer Street is very quiet this afternoon. The annual banquet occurs to-night. All the recent ebullition of bullish sentiment over the prices paid for fine merinos and crossbreds at the recent British sale helps the local market but little. The fortunes of Summer Street are, for the time being, bound up with medium wools of which they have a large quantity; and the sight of fine wools, of which they have very little, ascending to high levels was plain intimation that only such wools need apply for admission to the mills.

The January series of London sales came to an end last Friday. Nothing startling occurred. So far as reliable information is available it would seem that fine wools were stationary as to price, medium wools a little firmer and crossbreds slightly higher. Closing prices, on exchange of $3.75, were as follows all clean cost landed: 70s $2.40; 64s $2.26; 60s $2.03; 58s $1.78; 56s $1.50; 50s $1.32; 46s 68c.; 44s 62c.; 40s 58c.

Other foreign markets are firm but without feature. In B. A. wools standard 3s are quoted at 86c:; standard 4s 60c.; standard 5s 46c. all clean and landed. In M. V. wools choicest 64s French combing are quoted $1.74 and 46-48s 93c. clean basis landed. Prices for fine Capes hold firm, $2.38 being asked for 12 months and $2.05 for 10-12 months both C. I. F. Boston on exchange at $3.80.

Our government is now proposing to get rid of its surplus carpet varieties by asking for sealed bids for its 198,587 pounds of grease and its 76,802 pounds of scoured wools. This presages a similar operation for all wools when the auctions, which are yet to run 4 months, come to an end. Estimates differ as to the amount of wool that will remain unsold at that time; but as they have about 82,000,000 pounds of inferior material, if they auction two-thirds of this amount they will do very well considering present temper of textile industry and the further fact that the new domestic clip will soon begin to seek a market.

CROSSBREDS TO BE RE-OFFERED

The intention of the British authorities to re-auction their rejected crossbreds next week is viewed in the trade with serious misgivings. Great Britain is master of the general wool situation at the present time and she could sell her wools far below governing prices in Boston and still make a large profit.

WOOL AND WOOL GROWERS

Unification of sentiment among wool growers was never more apparent than at the present time. Summer Street has never taken the wool grower very seriously and for years has acted chiefly as banker and grader for the grower. The sentiment to eliminate intermediary non-producing organizations is strong throughout the country and is likely under the embarrassment forced upon the thinking classes of the country, by the high cost of living, to increase rather than to diminish. The wool trade, so some observers aver, is not so securely intrenched among the necessary organizations of the country as they sometimes imagine. The larger organizations of the textile industry do not hesitate to buy wool direct any more than feel a qualm about supplying their operatives with food stuffs previously handled by local stores.

WHEN IMPERIAL CONTROL CEASES

U. S. Government holdings at the present time approximate 48,000,000 pounds of more or less defective South American crossbreds. Wools grading above 56s total 725,000 pounds only, while wools grading 44s and below total approximately 20,000,000 pounds. In addition there are large holdings of Australasian wools. It can readily be seen, therefore, that we have all the low and medium crossbreds around Boston that we need for some time to come. Should, however, the New Zealand wools to be re-auctioned be purchasable below their intrinsic value, as judged by present depression in these wools, they will be bought, as it may be months, if not years, before similar wools come here. Men on the Street are expecting that when the Imperial control of Australasian wools ends in June the old-time relations will be immediately set up and buyers will be able to take what wools they want out of a free market and at a normal market price. But they surely are unduly optimistic and are overlooking the fact that the Imperial government is not going to allow itself to be left high and dry with immense wool stocks with the market cut away from under.

Receipts of wool, in pounds, at Boston, for the week up to Wednesday are as follows:

	1920.	1919.
Domestic	865,500	1,346,491
Foreign	1,580,700	3,635,164
Totals.....	2,446,200	4,981,655

Receipts of wool in pounds, from and including Jan. 1, 1920, compared with the same period in 1919, are as follows:

	1920.	1919.
Domestic	5,976,375	4,787,838
Foreign	9,596,520	13,966,804
Totals.....	15,572,895	18,754,642

Shipments of wool for the week ending and including Jan. 28 are as follows:

Boston & Maine	.....
Mystic Wharf	168,000
Grand Junction	616,000
By sea	10,000
Boston & Albany.....	1,047,000
New Haven	1,820,000
Total.....	3,661,000
Shipments during previous week..	3,667,000
Shipments same week last year..	2,023,503
Shipments thus far this year.....	13,887,000
Shipments same period 1919.....	7,885,299

Boston Wool Trade Notes

F. Nathaniel Perkins, secretary of the Boston Wool Trade Association, in addition to his other duties, has been acting as chairman of the civilian committee appointed to secure funds for the building of a Y. D. clubhouse in this city. The wool trade subscribed about $8,000.

A settlement has been arranged by the United States whereby the sum of $1,600,000 was paid to the Internal Revenue Department by William A. English and John H. O'Brien of the top-making concern of English & O'Brien. The civil suit for the recovery of $3,000,000 will be withdrawn. English and O'Brien, who have now served about one-third of their sentence, are expected to be released on parole in the course of a week or two.

LESS ACTIVITY REPORTED

Wools Rule Firm—Manufacturers Apparently Covered on Needs

PHILADELPHIA, Jan. 27.—There is not a great deal reported this week in the way of consummated wool sales. There are many trades pending on medium wools, in both quarter and three-eighths, some of good size, but actual sales are limited. There are several reasons advanced for this situation, as it is asserted there is nothing to indicate any decline in values, or even interest. Stocks on hand are not any too plentiful from all accounts here. Fine wools of course are well depleted, while even medium wools are said to be in limited supply. Consequently dealers have not been very active in offering wools. Then, too, it is pointed out, many manufacturers decline to take on any more wools at this time, as they either have sufficient for their present needs, or consider they have enough capital tied up in wools already. Several manufacturers who have been approached with samples of the class of wools they use, declared they would not be interested for at least two months, while others have sufficient to carry them until May.

The situation generally is regarded as unchanged, with prices holding firmly. Improved interest is reported developing, in medium wools, with even lower and off wools coming in for some attention where prices are right. The results at the auction of Australasian wools were anticipated, and the announcement that the remaining wools, in the crossbred New Zealand grades, are to be offered again, is noted with interest.

FEW SALES REPORTED

No sales of any moment are reported this week. Many factors really have nothing much to offer, as consigned wools held here, in various sized lots, represent extreme ideas of prices on the part of their owners. Other wools are gradually showing depletion, and dealers make efforts to maintain their stocks in proper shape to offer their customers. Not much interest is reported as coming voluntarily after the wool; it requires a canvass as a rule. Several good sized trades are reported pending on medium wools. Other houses had nothing to show in the way of sales save odds and ends in burry, black and other clean-up lots which hardly represent the market. Price limits are about the same with quarter bloods around 63 to 65c. for fleeces, with three-eighths around 67 to 69c. Among the sales noted are 90,000 lbs. of Soda Springs quarter blood at 52c; 160 bags of half blood scoured and processed fleeces, a short wool, at $1.36; 15,000 lbs. of quarter and three eighths black fleeces at 50c.

SCOURED WOOLS QUIET

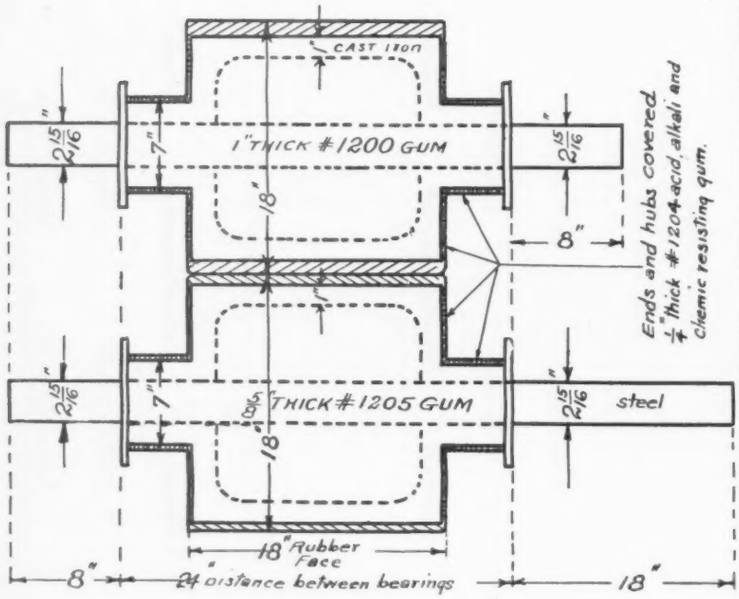
Scoured wools are reported showing rather less activity this past week. Evidently manufacturers have sufficient for their immediate needs, and therefore are not anxious to incur any further obligations until they are compelled to buy. High prices on their stocks require a considerable outlay of capital, so they are led to operate cautiously. However, dealers are not disposed to worry over the outlook, and hence make no efforts to force sales by making concessions. Prices therefore remain the same, with the average B scoured held at $1.05 to $1.10, while better selections bring $1.25 to $1.30. Dealers say they could sell Australian lambs and fine wools, if they were only available, but there is very little worth mentioning in these grades. Consequently the trade here also feels the necessity of a freer use of these medium wools. A sale of 90,000 lbs. of foreign quarter blood scoured wools was made at from 85c for the lower edge, up to

NOILS QUIET BUT FIRM

Noils also show rather less actual $1.10, for the better wools.

trading. Dealers hold their stocks at firm prices based upon the high prices at which they were bought, so there is not much chance for dealers to pick up any low priced stocks here. At the same time offerings from manufacturers are not very extensive, and these also are held at high figures. On the market, prices remain about the same, in the absence of any trading worth mentioning. A good sized line of fine processed noils sold at $1.35. On regular fine noils, run from $1.05 to $1.15; half bloods at $1.00 to $1.05; three

SPECIFICATIONS FOR
"SUPERIOR LINE"
RUBBER BLEACHERY SQUEEZE ROLLS



WRITE US FOR OUR SPECIFICATIONS FOR RUBBER ROLLS SUITABLE FOR ANY SPECIAL CONDITIONS

STOWE & WOODWARD CO.
NEWTON UPPER FALLS, MASS.

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Process of Water Softening Has Distinctive Features

To begin with, it is a chemical rather than a mechanical process being, in fact, a *filtration* process through a bed of an active exchange-silicate material.

And, more important still, this material—BORROMITE—remains firm and as hard as granite, rather than becoming soft and spongy, as do other chemical filtration media.

And, third, the apparatus—consisting of Borromite and salt water tanks—is extremely simple, highly effective, and relatively inexpensive.

There are many other things worth knowing about the BORROMITE System. Send for data.

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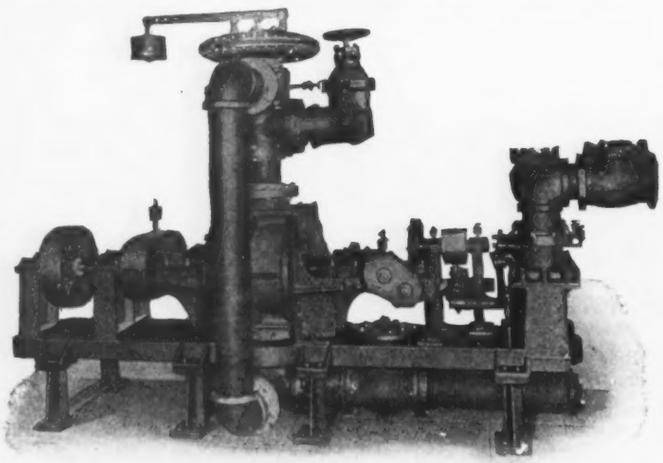
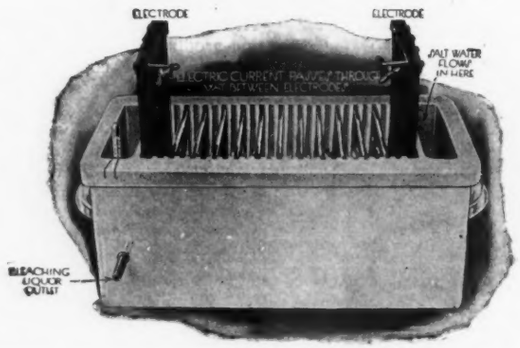
THE KEMP AUTOMATIC GAS SYSTEM



When yarn gassing machines are supplied by gas through the KEMP SYSTEM every thread is gassed alike insuring uniform color when dyed. The machines are run at maximum speed even when gassing heaviest thread, consumption reduced usually 50%; number of burners reduced; all the burners operated in unison by one valve; guaranteed saving soon pays cost of installation.

Make Your Bleach Out of Salt and Water



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THIS IS NOT AN UNTRIED PROCESS

There is absolutely no question about its merits. Hundreds in successful operation.

Write, giving amount of bleach used daily, current available, and cost of same.

We make cells of special construction for any purpose.

They produce a neutral Sodium Hypochlorite.

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eighths at 80 to 95c., varying according to grade; quarter bloods at a wide range of 65 to 75c.

Philadelphia Wool Trade Notes

John E. Shields, formerly connected with A. H. Zayotti & Co., has opened an office 105 So. Front Street, where he has engaged in business under his own name, handling wools, noils, and wastes.

Edward A. Slavin, who has been connected with Winslow & Co., Philadelphia offices, has resigned to accept a position with Jas. G. Kitchen & Co.

STIMULATION EVIDENT

Trades Pending in Three-eighths and Quarterblood Wools

NEW YORK, Jan., 27.—Trades pending in three-eighths quarterblood wools interest a certain quarter of the wool market here. The certainty of a big fine demand in the heavyweight season in the goods market throws a certain amount of doubt and skepticism on any large movement immediately in the coarser wools.

Opinions coming over from the goods market that a rise in wool may be expected when the thick of the heavyweight season arrives are received rather coolly. The trade understands thoroughly that the wool market is one commodity market that was so smothered under Government control that it has not followed the extreme rises that have been noted in other staples in raw materials. As a matter of good business, few have much desire to see it go booming now. Those who predicted fine Australians at $2.75 or better are satisfied now that the prediction has been realized. Scoured Capes at $1.40 to $1.45 have made most of the activity of the last ten days .

In carpet wools little has been done lately, the final disposition of Government wools of the low grades causing small interest to be shown in traders' stocks.

RAW SILK UNCHANGED

Markets at Home and Abroad Steady at Record High Levels

The raw silk market is practically unchanged from last week. The Yokohama market is fairly active on a small supply. The visible stock stays around 8,000 bales.

On the local market the buying has been dulled by the high prices and evidences of unrest in the factory districts. Matters are not going very well in the goods market, either. An advance of 25 per cent. was considered to be the limit procurable on piece goods this year, and conditions indicate that such a rise will hardly cover the extremes in sight. In China new style reelings are in active demand and close to 4,000 bales of the new crop have been disposed of. The Italian market is unchanged at Milan, and very firm. A price of 500 lire per kilo is now being quoted by reelers for extra classical silk.

Prices are quoted about as follows:

Filature Kansai Double Extra Cracks	$17.77½
Filature Kansai Extra 13/15	17.65
Filature Best No. 1 Extra 13/15	17.57½
Filature Best No. 1	17.50
Filature Kansai No. 1 13/15	17.45
Filature Sinshui No. 1 13/15	17.40
6 months' basis.	
CHINA.	
Canton XXA, Crack, 14/16	12.00
Canton XXB, Crack, 14/16	11.50
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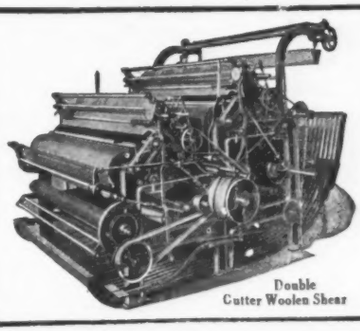
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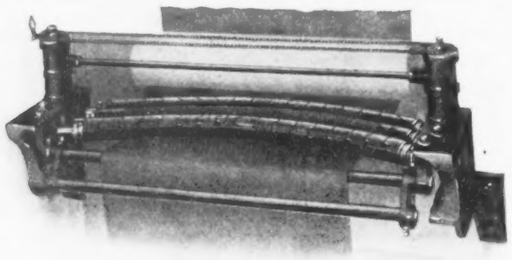

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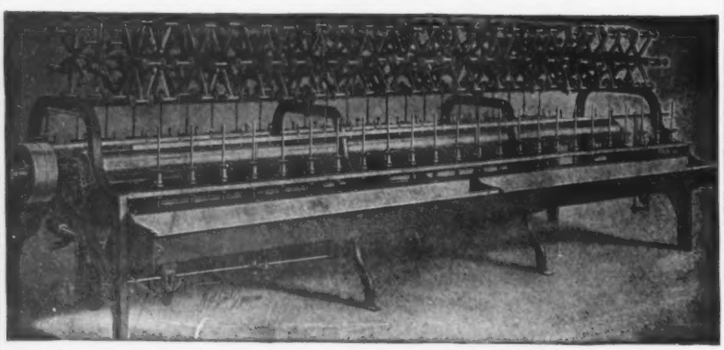

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ACQUIRE PRINT WORKS

The Consolidated Textile Corporation to Take Over Windsor

The Consolidated Textile Corporation has arranged to acquire the Windsor Print Works of North Adams, Mass., and will take possession as soon as verification of figures and the approval of legal details are completed. The purchase price will be paid in stock of the Consolidated Textile Corporation at a valuation of $30 per share.

The business of the Windsor Print Works was originally established in 1829. Its product consists of printed and dyed cotton fabrics, the brands for which have long been established, and have the highest standing in this and other countries. In a notice to stockholders the Consolidated Textile Corporation promises more definite information as to the basis on which the Windsor Print Works has been acquired.

Fred Howard, son of the late Charles Howard, will continue in charge of the merchandising department of the business, assisted by C. Worth Howard and J. L. Geoffrey. The management of the mill will be continued in the hands of D. A. Russell and Joseph Bennett. The Windsor Print Works has a capitalization of $1,600,000. The plant has 14 printing machines; 6 boilers; electric.

ANNUAL WOOL BANQUET

Boston Now Largest Wool Market in World

BOSTON, January 28.—That credit expansion had gone far enough, perhaps dangerously enough already, and that the banking judgment of the reserve system was justified in putting on the brakes was the opinion expressed by Frank A. Vanderlip at the eighth annual banquet of the Boston Wool Trade Association held this evening at the Sopley Plaza Hotel. The bubble of credit had been blown thinner and thinner and this expansion had greatly increased purchasing power leading to excessive prices without any increased production. In his opinion labor was not more than 60 per cent. efficient to-day.

Never before in the history of the association had there been such a gathering of members and guests, some 600 being present.

Textile affairs were, of course, in the background but President Nunn in introducing the famous New York banker took occasion to say that Boston was now the largest wool market in the world and the Boston wool trade by their enterprise and sagacity had rightly won for themselves a place in the sun.

The seating arrangements were excellent, the table list containing a complex information regarding those present. Nothing had been left undone and the committee in charge are greatly to be congratulated. At the head table were the following: Paul T. Cherington, Charles F. Avery, Frederic S. Clark, William E. Jones, J. R. Macomber, Abraham Koshland, William M. Wood, J. F. Brown, Frank A. Vanderlip, President Charles P. Nunn, Carl E. Akeley, Samuel G. Adams, Major O. T. Simpson, Ernest W. Brigham, Frank B. Windeler, Arthur E. Gill, C. J. D. Goldie and Secretary F. Nathaniel Perkins, a notable assemblage of distinguished foreigners, ex-presidents, manufacturers and men of large affairs.

Cotton Mills Offered Subject to Prior Sale

No. 2—Cotton yarn mill—23,000 spindles. Cards and combs. Located Middle Atlantic state. Highest grade manufacturing proposition.

No. 12—Cotton goods mill—5,500 spindles, 160 looms. Located in South.

No. 13—Cotton yarn mill—11,000 spindles. Good condition. Now on 30s. Located in South.

No. 22—Cotton goods mill—31,000 spindles, 600 looms, 4-4, 5-4, 6-4 located in New England.

No. 23—Tire yarn mill—11,000 spindles, 60 cards. Located in South. Prompt action necessary.

No. 24—Cotton goods mill—51,000 spindles, 1,350 looms. Located in New England.

No. 26—Cotton spinning mill—7,800 spindles, 40 cards. Located in New England.

No. 27—Cotton weaving mill—850 looms, 4-4, 5-4, (no spinning). Located in New England.

No. 28—Cotton spinning mill—30,000 spindles, 6,500 twisting spindles. Excellent tire yarn propositon. Located in New England.

No. 29—Cotton spinning mill—25,000 spindles, 5,500 twisting spindles, good for tire yarns. Located in New England.

No. 30—Cotton spinning mill—20,000 spindles, 7,000 twisting spindles. Located in New England.

KNITTING MILLS OFFERED SUBJECT TO PRIOR SALE

No. 202—Hosiery mill—12 Kntg. mach. All other equipment. Located in Middle Atlantic state.

No. 203—Hosiery mill—65 latch needle machines for 240 needle goods. Dye plant. Located in South.

No. 204—Hosiery mill—60 Kntg. mach. 200 needle, almost new. Located in New England.

No. 205—Hosiery mill—20 knitting mach. 220 needle. Located in South.

No. 206—Hosiery mill—18 Kntg. mach. 84 needle. Also 40 Kntg. mach. 176 needle. Located in South.

No. 207—Hosiery mill—32 Kntg. mach. 220 needle. 1 Kntg. mach. 280 needle. Located in Middle Atlantic state.

VACANT PROPERTIES FOR SALE SUITABLE FOR TEXTILE MILLS

No. 602—26,140 Sq. Ft.—Located in country near New York City.

No. 603—30,000 Sq. Ft.—Located New York State.

No. 609—26,500 Sq. Ft.—500 acres land. Power plant. Good labor and housing facilities. Located Middle Atlantic State.

No. 613—135,000 Sq. Ft.—Modern construction. Good labor. Location New England.

No. 616—130,000 Sq. Ft.—Good labor. Near Philadelphia. 1000 ft. frontage on Delaware River. 14½ acres land. Complete power plant and transmission. At less than appraised valuation.

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Textile World Journal

EDITORS

C. H. Clark V. E. Carroll Clarence Hutton

(Subscription rates and other information will be found on page 539)

A TENET OF OUR CREED: WE BELIEVE IN THE CONSERVATION OF AND PROTECTION TO DOMESTIC INDUSTRIES.

Vol. LVII February 7, 1920 No. 6

IN time of trade peace prepare for trade war! The world war rendered tariff protection temporarily unnecessary by commandeering practically all industry and transportation. As long as the natural protection, due to inadequate world production, continues artificial safeguards will remain unnecessary. The nullification of a large percentage of our tariff by the depreciation of foreign exchange may even be viewed without alarm at the moment. But now is the time to set our business house in order to meet the world commercial war that is to rival in bitterness the vast sanguinary contest recently ended, and that will test to the uttermost the offensive and defensive ability of our merchants, manufacturers and bankers.

In Time of Trade Peace Prepare for Trade War

* * *

PRODUCTION, production, and more production is the only practical remedy for high cost of the necessities of life. A financial panic would, of course, eliminate inflation and lower prices, but such a cure would be worse than the disease. Thrift and economizing are fine in theory, but are impracticable because it is not possible equably to apply such old-fashioned remedies, and there are no laws nor regulations to force the public to take them. High prices will effect their own cure if the law of supply and demand is allowed to function in an unrestricted manner long enough, but the reaction may be too long in coming to relieve the worst sufferers, and the reaction from too high prices may easily prove as serious as a financial panic; in fact, might produce one. Production, production and more production is the only effective remedy. For high textile prices no other seems likely to become available for several years. Excepting flax, there is no shortage of textile raw materials to account for high prices; in fact, stocks of wool are the largest on record, and those of cotton, silk and jute would be found more than ample to meet the demand were the latter satisfied with available grades and were speculation eliminated. We speak of a world shortage of textile machinery, but what we mean is a shortage of time in which the machine equipment is operated. Make it possible to run available textile machinery on double or triple shifts and within three months prices of textile products will commence to topple like a row of blocks. Labor is not primarily responsible for starting the upward trend of prices; the world war did that, but labor's demands for shorter hours, higher wages, still shorter hours and still higher wages, ad lib., plus inefficiency, have been almost solely responsible for the steady, relentless and apparently interminable upward push of prices. And labor suffers the most despite its plethoric pay envelope. And labor has the power to say when the advance in prices shall cease; yes, and without danger of an early reduction in wages. How? By joining employers and consumers in an appeal for a temporary modification or abrogation of labor laws (say for three years), that will allow machinery and capital to be employed to its utmost capacity. Work won the war. Hard work can defeat high prices.

Only Practical Remedy for High Prices Is More Production

* * *

INDUSTRY throughout the world has learned at least one valuable lesson from its war experience, and that is the importance of exact scientific knowledge of its raw materials, processes and machinery, and the need of systematic research in developing such knowledge. In Europe the leading industrial countries are developing comprehensive research plans financed and controlled in part by their governments. Even Germany, despite its vaunted leadership in scientific knowledge, has discovered that its industrial research had been largely keyed to war making and is now reorganizing it for peace purposes. In this country research has been and is now being developed along individual or democratic lines. In the cotton branch of the textile industry substantial progress has been made and well-rounded plans of a promising character are being developed. All industrial progress has been the result of research work, but it has neglected fundamentals and controls, and has produced a skeleton structure resting upon a most insecure foundation. It is for systematic research to first build a firm foundation and then fill in the walls, before undertaking to expand the structure. Had adequate finances and facilities been available to Arkwright, Dr. Cartwright, Crompton, Jacquard and other pioneer textile inventors it is fair to assume that the results of their efforts would have been more highly developed and much more quickly attained. The same statement applies to thousands of researches that have been conducted in the mills in a haphazard and unscientific manner. It is also worthy of note in this connection that, of the thousands of efforts made to develop new textile machines, devices and processes, only a small fraction have become commercial successes. All involved research, and are an effective answer to those manufacturers who decry systematic, scientific research because of the small percentage of practical results usually attained.

Importance of Systematic Research Work a Lesson of World War

* * *

EVERYTHING of an industrial nature is inflated to-day excepting production, and that is the main reason why everything industrial is inflated. Textile wages are approximately 150 per cent. above the pre-war basis, machinery costs have advanced fully 300 per cent. as an average, building costs 100 per cent., raw material costs 200 to 600 per cent. depending upon their character; money rates have apparently advanced only 50 per cent., but if inflation is allowed for, are up about 100 per cent., and it requires three or four times as much working capital to finance a given quantity (not value) of business; overhead has been swelled by 200 to 300 per cent. Yet we are still referring to advances in mill dividends and stock values of 100 per cent. as phenomenal, and we are accustomed to "point with pride" to production and sales that in money volume are only double those of pre-war years. It is time to awaken to the fact that we are fooling ourselves with economic fallacies which, if persisted in, ultimately must place the industry in an embarrassing position in labor relations, and also, possibly, in its financial relations. If doubled dividends are an accurate reflection of earnings, they are pitifully small as compared with labor's takings from the industry, and stockholders are warranted in complaining. If the legitimate advance in stock values is only 100 per cent., then the business has been mulcted unwarrantably by Federal taxes, or has not been well managed. If the money value of sales has merely doubled since 1914, then labor must have a strangle hold on production, or there must be gross mismanagement somewhere. The moral of all this is that, despite the fact that labor has a strangle hold on production and the Federal Government on profits, there is nothing to be ashamed of nor to gloat about in a volume of business, earnings, dividends or stock values that are double those of pre-war years.

Where Does Legitimate Inflation End and Profiteering Begin?

* * *

DISTINCT progress has been made by the textile industry in the last twelve months in efforts to improve the relations between employers and employes, and the symposium of plans, opinions and results that is presented in this issue will make it possible to visualize accomplishments and tendencies. So aptly was the situation anticipated in these columns a year ago that we may be pardoned if we quote in part as follows: "The really vital problem of industrial relations faced by textile manufacturers is not one concerned with organized labor, but in finding some means that in large plants will take the place of the personal contact and mutual confidence and esteem that exist in so many small organizations between mill officials and operatives. With the example fresh in their minds of what can be accomplished by a common patriotic incentive, to bring employer and employe together in cordial co-operative effort, manufacturers will approach with new zest the study of methods by which this fraternal spirit may be perpetuated." To-day the problem is unchanged, but its solution has been simplified to a very considerable degree by the numerous demonstrations in textile mills and communities of various methods. Shop committees, industrial democracy and other types of works councils have been given a fair trial under divergent conditions, and the experience of employers and employes is freely available to any interested party. Not all of these systems, it is true, have undergone in textile mills the severe test of poor business and reduced wages, but, unless encumbered with profit-sharing schemes, such a test is to be feared less than the shock assaults of professional agitators, for, with rare exceptions, the latter have been met successfully. Manufacturers who still hesitate to give their employes the benefit of representation through some form of works council, because of fear that such an organization may at any time become the nucleus of a national labor union, have no legitimate excuse for neglecting to employ some of the older and simpler means of improving industrial relations, and that are so well exemplified at the plants of Cheney Bros. and the Goodyear Cotton Mills, Inc., both of which are described in this issue. There are numerous other similar types of old-fashioned, square deal methods in textile communities that might be studied with equal profit, and they demonstrate that, where the resident mill representatives are given the authority and have the happy knack of engendering a spirit of good will, no complicated works council, profit sharing or other modern method is necessary. In the large plant, however, industrial relations cannot be treated safely in a haphazard way, and this is particularly the case where there is no close personal contact with owners or corporation officials. Industrial betterment work must be organized and have a personal entity in constant sympathetic touch with the employes. The works councils provide the organization and make the personal entity a co-operative proposition. They tend to make employes equally responsible with the employer for the maintenance of a man-to-man, square deal status.

Marked Progress in the Betterment of Employer-Employe Relations

Betterment of Employer-Employe Relations

There is no argument as to the problem which has been predominant in the minds of the textile industry during the year. The relationship of the manufacturer to his employes in all its ramifications, extending into various forms of welfare work, the determination of wage scales, the increase of production and the thousand and one other details which have pressed for solution have made the question of Industrial Relations the outstanding question in all branches of the textile trade that is most urgent for answer and which demands most earnest consideration. With this thought in mind editors of Textile World Journal have endeavored to collate expressions of opinion on the various angles of this subject from those who have had practical and intimate knowledge of the large field of Industrial Relationship. They have made this section the leading one of the special features in this Annual Review Number and have tried to bring together in a logical way the developments that are outstanding in the progress toward solution of the problem.

The abstract of the Industrial Conference Board's report on "Works Councils" in the U. S. forms a very logical preliminary to the practical articles in this section. The essential character of these councils, the results of experience with them, as thus far recorded, and a brief historical survey of the movement, with information regarding the various types and important facts as to organization, constitution and methods of procedure culminate in a broad summary of the entire procedure. It should be understood that this resume does not intend to express the opinion of the National Industrial Board on the desirability or efficacy of Works Councils. It is appreciated that more extended experience with this form of industrial relations is necessary in order to form a reliable basis for judgment. The data included in the abstract are brought down to August 1, 1919, and do not include the Works Councils since established.

An important feature of the section is a description of the leading examples of Industrial Democracy as established in the textile industry. The so-called Leitch plan is exemplified in the human interest accounts of the working out of this plan in important mills, while a bird's eye view of the ideals sought is given through the description of a conference with leading workers on this scheme with its originator.

That other variations of representation for the employe in connection with the operation of industrial plants should receive consideration is recognized and the general principles of these plans are detailed. These variations extend even into the consideration of the establishment of company or co-operative stores, a subject which is engaging the attention of a good many important factors in the industry at the present time. The symposium on this character of representative work is presented in the belief that it may furnish manufacturers with valuable ideas on the subject. In addition, illustrations of textile welfare work, if you please, are included in the section, with methods employed by leaders in handling their employment problems forming interesting side-lights. The editors feel that this collection of articles, gathered together at considerable expense of time and money, presents the latest thought on a subject on which manufacturers confess they need all the light that can be furnished them.

Forms of Work Councils in the United States

Current Plans for Improving Relationship Between Capital and Labor Outlined

UP to the period of the war the Works Council* was practically unknown either in the United States or in Great Britain. While the number of establishments having Works Councils today is still relatively small, at the present time such organizations are known to exist in this country in more than 200 establishments employing about 500,000 workers, and their organization has progressed even more rapidly in Great Britain.

The recent growth in the number of Works Councils, as well as the importance of their aims, gives to the study of this form of industrial organization a timely and vital interest.

Essential Nature of Works Councils

The Works Council may be described as *a form of industrial organization under which the employes of an individual establishment, through representatives chosen by and from among themselves, share collectively in the adjustment of employment conditions in that establishment.* The Works Council is intended as one means of satisfying the desire of the worker for a share in the adjustment of his work conditions; as a means of lessening labor difficulties, of allaying industrial unrest, of increasing productive efficiency; and as an opportunity for informing employes on production, technical and economic questions. It provides, in the individual establishment, an organized form of contact between the employer and his employes.

Works Councils vary widely in their form and in the scope of their activities, but one characteristic is common to all, namely, the election of the employes' representatives by and from among the workers themselves on some democratic basis of representation. For this reason, committees of employes appointed by the management are not considered in this report. Similarly, trade union shop committees are excluded since, instead of being elected by the workers of the individual establishment on a democratic basis, they are chosen by the organized workers only, or by trade union members irrespective of their employment in the particular establishment.

The institution of the Works Council obviously involves acceptance by the employer of the principle of collective dealing. Under a plan of employe representation, questions previously settled between the employer and his employes individually are handled by representatives of the employes collectively, and, moreover, on a systematic basis. Recognition of the principle of collective dealing by the employes of individual establishments with their employer forms the very basis of the Works Council. Such collective dealing is, however, distinct from "collective bargaining" in the sense of collective dealing with labor unions as organizations.

The Works Council, however, is not in its essence a substitute or an alternative for labor union organization. In recognition of this fact, some notable plans of employe representation expressly provide that employes shall not be discriminated against because of labor union membership. While the Works Council tends to restrict the activity of the labor union in matters purely local to the individual establishment, the union may still be potent in settling problems common to the entire craft, industry or locality.

Clear distinction should be made between a Works Council and the occasional meeting of an employer with committees or deputations of his workers, only when some exigency arises. In other words, the contract between management and men established by a Works Council is on a definitely organized and systematized basis and is continuous.

A Comparatively Recent Development

Works Councils are a relatively recent development in industrial organization. Although proceeding from forces long active,—a desire on the part of the employer to establish a more intimate contact with his employes, on the one hand, and a desire on the part of the workers for effective representation of their interests, on the other,—the first known example of a Works Council in the United States dates back only to 1904. Up to January, 1918, only 29 such organizations had been formed, so that practically all existing Works Councils were established during a period of 18 months. Their rapid increase in number during this period is to be attributed mainly to the activity of the National War Labor Board and the Shipbuilding Labor Adjustment Board and to abnormal wartime conditions.

The number of Works Councils disclosed by this report—approximately 225 in 176 companies—is, of course, relatively small as compared with the total number of industrial establishments in the United States. Their development, while significant, must therefore be regarded as in an experimental stage.

The largest number of these Works Councils are found in the various branches of the metal trades and the next largest in the shipbuilding industry. Practically all of them are located in the states east of the Mississippi River. They exist under a wide variety of conditions. While often found in small establishments, by far the greater number of them are in large establishments employing a high proportion of skilled and of English-speaking workers. With respect to the degree of unionization among employes, establishments with Works Councils are about evenly divided between those in which a majority of the employes are unionized and those in which only a small proportion or none are union members. Practically all establishments having Works Councils are "open shops."

"Committee" Type Most Flexible

By far the majority of Works Councils are of the "committee" type, as distinguished from the "governmental" type modelled after our system of Federal Government. Of the total of 225 Works Councils considered in this report, only eight are of the latter type.

While a choice between the "governmental" and the "committee" types of organization is largely a matter of personal preference, experience indicates that the "committee" type in general is the more desirable because of its greater flexibility. In large establishments in particular the "governmental" type has the disadvantage that in order to be properly representative of the employes it must necessarily be so large as to be unwieldy. Also all questions, however trivial or local, arising in any part of the plant must be referred to the House or Senate, and thereby become the concern of the whole plant. These difficulties are avoidable in the "committee" type of organization, since it permits of the development of divisional committees in the smaller units of the plant.

Joint Form of Works Council Favored

As between the separate and joint form of Works Council, the latter appears to have some advantages. The Joint Works Council, composed of an equal number of representatives of the employes and of the management, tends to develop in both a sense of their mutuality of interest. As a result, its activities are more likely to be of a co-operative and constructive nature. Obviously, agreement between the parties

*It is believed that the term "Works Council" best describes this new form of industrial organization. The expressions "democracy in industry" and "employe representation" obviously are too generic in that they designate the movement and not the specific form which it has assumed. The name "shop committee" is misleading in that the works and not the shop is the real unit of organization. Moreover, it does not distinguish between "employe representation," "trade union," or technical shop committees. The term "Works Council" appears to be properly inclusive as well as definite and exact, and is therefore used in the accompanying report.

should be facilitated by reason of the fact that the representatives of both, sitting as members of the same body, hear the full facts concerning matters under discussion before they are required to take a position. A special provision authorizing either set of representatives to meet separately may, however, be desirable, since an opportunity for either group of representatives to talk over a matter among themselves, following joint discussion, may often facilitate a settlement. Moreover, such a provision preserves the separate entity of the two parties where their interests may be in conflict.

Divisional Form Suited for Large Plants

With respect to their constitutions, the Works Councils reported upon are about evenly divided between Single Works Councils and Works Councils based upon divisional committees. The former are found mainly in small plants; where Single Councils exist in large plants, the establishment is generally subdivided into voting divisions for the purpose of electing the members. Works Councils of the second class, that is, those which comprise not only a general committee for the plant but also smaller representative units, such as departmental, divisional, shop or craft committees, are characteristic, by contrast, of relatively large establishments.

The latter form of organization has been found especially advantageous in large establishments, where, in order that all interests among the employes may be properly represented, a single Works Council would be too large for effective work. In this connection it is to be noted that Works Councils are generally effective in actual operation to the extent that they embrace the various elements among the employes.

It has been found necessary to determine for each establishment individually the divisions in which Councils are to be set up, the only basis capable of general application being that such divisions should be natural units of the plant. The working direction, the number of employes, their occupation, their proximity at work, and other considerations have to be taken into account.

The employe members of the divisional committees are chosen, of course, by the employes in their respective divisions. The employe members of the General Works Council may be chosen by the employes of the plant as a whole or by the divisional committees, or they may be selected from the divisional committees.

While foremen, rate-fixers, division superintendents, and other minor executives may represent the management on the divisional committees, the management's representatives on the General Works Council are ordinarily high executives of the establishment.

Adjustment Procedure

In their procedure practically all Works Council plans prescribe that an adjustment be attempted with the foreman, or other plant executive, before a matter is referred to the Works Council for consideration. In a number of cases provision also is made for an opportunity on the part of company officials to use their good offices to effect a settlement in case the Works Council fails to reach an agreement.

A few of the plans provide merely for the negotiation of differences between an employes' committee and certain designated officials of the company. In these cases no detailed procedure is prescribed. But most Works Council plans call for the joint action of formally constituted representatives of the employes and of the management in the settlement of matters. Such action may be taken by a joint council comprising in its membership representatives of both parties, by an employes' committee meeting in joint session with a committee representing the management, or by a special sub-committee of the Works Council made up of representatives of both employer and employes.

Under a majority of the plans a simple majority vote of the combined representatives of employes and management is decisive. In the case of the "Bridgeport Plan," however, a majority of two is required. In only four plans is a unanimous vote prescribed.

Compulsory Arbitration Seldom Needed

Ultimate settlement of matters failing of adjustment by the Works Council is provided for by compulsory arbitration in only a small minority of establishments. A smaller number of plans, effective, however, in over twice as many establishments, provide for final submission to arbitration if the parties at the time agree thereto. Ultimate power of settlement rests with officials or the board of directors of the company in only a few cases. The plans in effect in a majority of the establishments make no provision for further reference after the Works Council has failed to reach an agreement. Inasmuch as in the experience of Works Councils thus far, matters have seldom reached a deadlock, the means provided for the final determination of questions have been important chiefly from the standpoint of fixing the authority possessed by the individual Works Council.

Qualifications of Representatives

Relatively few plans qualify the right of employes to vote for members of the Works Council, other than that they must be in the employ of the company at the time of the election. A majority of the plans, however, require that employes must have certain qualifications if they are to serve as employes' representatives. The requirement most often prescribed is that they must have been in the employ of the company for a fixed period, generally one year, preceding the election. In many cases American citizenship and the attainment of the age of 21 also are stipulated. The usual term of office is one year.

Election Methods

Elections most often are by the double process of nomination and election, as distinguished from direct election. However, experience with the latter method, in the Bridgeport establishments in particular, points to its superiority in certain respects over the nomination method. A simple notice is posted in the shop stating the date and other particulars with respect to eligibility, manner of voting, etc. In the interval before the election the employes have an opportunity to talk over among themselves possible candidates, while the formality, loss of time, and other disadvantages accompanying the circulation of petitions or the holding of meetings for purposes of nomination are avoided.

In order that a large and representative vote may be cast, it has been found desirable to hold elections on the plant premises and during work hours or immediately thereafter. Attempts to conduct elections away from the plant and outside of work hours, as in the evening, have not met with success.

It is important that the management refrain from all participation in the conduct of elections, so as to avoid any appearance of attempting to influence the results. In this connection it is sometimes provided that foremen and other representatives of the management shall be absent from the place of voting while the balloting is in progress.

Meetings Must Not Be Perfunctory

In a majority of plans provision is made for meetings of the Works Councils at regular intervals, with added provision for special meetings. The Works Council, meeting regularly, ordinarily tends to do more constructive work than if it meets only upon occasion. The regular meetings furnish constant opportunities for the interchange of ideas and experiences. It is desirable, moreover, to have matters of vital interest to the employes constantly before the councils, if the meetings are not to become perfunctory; again, the members have less incentive to "make" business. There is no uniform practice with respect to meeting during or after work hours or on the company's or the employes' time.

Special provisions for protection of employes against discrimination by reason of union membership, and of representatives against discrimination by reason of their activities as council members, for the referendum and recall, for the compensation of employes' representatives and for the creation of a department of industrial relations are included in some plans.

No One Form Suited to All Plants

Experience with plans of employe representation has not as yet been sufficiently broad to establish finally the comparative merits of many specific features of organization. It is clear, however, that no one form of organization is applicable to all establishments alike. Differences in the size of the establishment, the personnel of the management, the character of the employes, and other particulars, require variations in the plan of organization. In general, it may be said, however, that Works Councils succeed best if they are (1) comprehensive in scope; (2) sufficiently flexible to permit of adaptation and development; (3) simple and informal in structure.

The Works Council, being a human institution, cannot be so planned as to meet all conditions and contingencies. Hence, even after all possible care and foresight has been exercised, many details of organization still remain to be developed in operation.

Matters Dealt With

With the exception of the small group of "limited" plans, all Works Councils deal with the terms of employment and serve as "bargaining committees" to the extent that they concern themselves with such subjects as hours of work, wages and piece rates. Most "National War Labor Board Committees," as well as three-fourths of the employers' plans, deal with these subjects. However, they are active also with respect to social and recreational undertakings and living and working conditions. The Works Councils voluntarily instituted by employers have laid particular emphasis upon these other activities.

In a considerable number of cases, Works Councils concern themselves with shop discipline, or with hiring, promotion and discharge, but mainly in the capacity of review and recommendation only.

The participation of Works Councils in the improvement of industrial methods and in general management functions has been relatively infrequent.

Some Benefits of Works Councils

Works Councils have met with varying degrees of success. Of the Councils regarding which experience is reported in this study, a small minority either lapsed completely or had only a perfunctory existence. With but few exceptions these were committees established upon the initiative of the National War Labor Board or the Shipbuilding Labor Adjustment Board. However, by far the majority of Works Councils have been active, either to a limited or considerable extent.

In most cases, Works Councils are reported as having produced favorable results, although in a number of instances, chiefly of "National War Labor Board Committees," they have apparently accomplished little or no good. In a few cases their introduction has tended even to aggravate labor difficulties. But on the whole they appear to have produced some benefit.

The beneficial result most frequently reported is an increase in good will and in co-operative spirit between employer and employes. A considerable number of employers reported specifically that labor difficulties were reduced because of the introduction of Works Councils. In several instances the Works Council was the means whereby strikes were prevented in individual establishments when strikes were general in the same industry or locality. It is true, as shown in Chapter VI, that labor disturbances have at times occurred in establishments where Works Councils have been introduced. Against this unsatisfactory experience, however, are to be placed the statements of the managements of several of these establishments that, in their judgment, the Works Council had modified the severity of the disturbance, and that they still regarded the Councils as of decided value.

In several cases the Works Council was reported as influential in reducing labor turnover. Difficult questions involved in the execution of awards of the National War Labor Board often have been satisfactorily handled by Works Councils.

With respect to productive efficiency, evidences of positive benefit resulting from Works Councils are comparatively few, although in some establishments marked increases in output were attributed, in part at least, to the existence of such organizations. In a few instances efforts have been made by Works Councils to reduce absenteeism and tardiness and to develop improved working methods, but the sum total of accomplishment along these lines is small.

Employers generally reported that a relatively high type of employe has been elected to membership in Works Councils. Further evidence of this is found in the decided preference shown for men long in the service of the establishment as Council members. Instances of radicalism or unreasonableness on the part of employe members of Works Councils are conspicuously few.

(Continued on page 331)

Representative Shop Committees in Industry

Two Types Evolved in Working Out Industrial Relations, Both Deserving of Careful Consideration

By L. P. Alford, Editor, "Industrial Management"

The relation of employer to employe is now such an important factor in all lines of industry that increasing attention is being paid to the methods by which these relations can be strengthened and both sides assisted in developing a proper affiliation for the conduct of businesses with which they are connected. The author of this article, L. P. Alford, editor of "Industrial Management," has made a careful study of this subject of Industrial Relationship and has divided the matter of shop committees into two principal types: governmental and committee. In the former is the so-called Industrial Democracy, while the committee type, of possibly wider scope, is in operation in a larger number of industries. A brief outline of the workings of these plans is given and the necessity of studying their application to particular industries and specific organizations in these industries is urged.

IN these days of complex, interdependent industrialism we like to think back a century and a half, or so, to the times of craftsmanship. Then the relationship between master and workman or apprentice was simply the human relationship of life; all that was done was as man with man.

Then there was a complete community of interest between the master, his family, his workmen, their families and his apprentices. Not only was he owner, proprietor and master workman, whose knowledge and skill set the standards for the little shop, but he was also the example of the virtues of right living and father confessor and counsellor of all who worked with him. His apprentices usually lived with his family, were served by his wife, and any one of them might aspire to become the husband of his daughter.

The development of industry into huge establishments has swept all of this away. Vestiges only remain in the small owner-superintendent-foreman shop employing from one or two up to possibly twenty men, where the proprietor is the leader, much as of old. In these little concerns there is still a community of interest, and the securing of a satisfactory order, or the completion of a big job, is an occasion for jollification on the part of all hands.

Established Points of Contact

Industry has suffered sadly from this loss of the former human relationship between employer and employe. So much so is this a fact that deliberate attempts are being made to organize the points of contact between all of the members of industrial organizations. These various undertakings classify under three heads: Industrial betterment; personnel and employment management activities; representative shop committees.

It is with the third movement that we are particularly interested in this review, for it is the newest and has had a tremendous growth during the past two years.

Under the general heading, "representative shop committees," are grouped organizations referred to as works councils, employes' representation, industrial representation, shop committees, company unions, industrial democracies, and the like. Other similar attempts at organizing the employer-employe relationship are the protocols in the garment making industries, and the agreements between trade unions and employers that have been worked out in numerous localities and industries, particularly in shipbuilding. But the scope of this paper does not go beyond the representative shop committee movement.

Early Developments

The earliest representative shop committee in the United States of which there is record was introduced in 1904 into the plant of the Nernst Lamp Company, Pittsburgh, Pa. H. F. J. Porter was at that time works manager, and under his guidance the "factory committee" was composed of representatives from the clerical force, from the shop operatives and from the foremen. The superintendent of the plant was permanent chairman. The management of this company has since changed and the committee has disappeared.

The period from 1904 to 1917 records scarcely more than nine or ten attempts along this line of organization. Only two outstand; one is the employes' representation plan of Hart, Schaffner & Marx, Chicago, clothing manufacturers, introduced in 1911. This firm had serious labor difficulties in 1910 and the following year formed what was called a "trade board." This consisted of five representatives of the trade union, five foremen of the plant, and a chairman chosen by both parties. This board was charged with the adjustment of grievances and with "original jurisdiction" over matters arising under agreements entered into between employer and employes.

The second noteworthy development was the employes' plan for representation submitted by the Colorado Fuel & Iron Company in 1914, following the miners' strike in 1913. This plan was approved by the employes and the directors of the company and went into effect in 1915.

During 1917 only a few employe representation plans were installed and of these two were of the type commonly referred to as "industrial democracy."

Early in 1918, under the stimulus of war conditions, several employers voluntarily initiated plans of employe representation, but the great impulse to the movement came through governmental boards: The Shipbuilding Labor Adjustment Board, United States Fuel Administration, United States Railroad Administration, and the National War Labor Board.

Present Status of Shop Committees

An investigation* made by the author early in 1919 yielded a list of slightly more than one hundred plants having some form of representative shop committees. Most of these were established under Government supervision. But with the passing of war conditions the movement has continued to go forward with great rapidity. The National Industrial Conference Board published a report in October, 1919, entitled "Works Councils in the United States." This document embodies the results of a study of representative shop committee plans in 225 American industrial establishments employing upward of 500,000 workers. Of these, 86 were created as a result of awards of the National War Labor Board, 31 following decisions of the Shipbuilding Labor Adjustment Board; the balance were established through the efforts of employers.

As might be expected the distribution by industries shows that the metal trades lead with 144 organizations. The other 81 are scattered through shipbuilding, coal and iron mining, food products, clothing, textiles, lumber, public service, petroleum, soap, wood products, rubber goods, printing, smokers' articles, fertilizer, telegraphy, milk distribution, loose leaf binders and shoes. Only four of these organizations are reported in the textile industry.

Naturally, the majority of the representative shop committees are found in the plants of the larger corporations, and mainly in establishments with a working force of over 500 persons. However, 18 shops were investigated where the number of employes affected were fewer than 200 in each case.

Two Principal Types

In general there are two principal types of the representative shop committee:

1. The governmental;
2. The committee.

The governmental type establishes an organization patterned after the United States Government with a cabinet, senate and house of representatives, or sometimes only the two latter bodies. This plan is often referred to as "industrial democracy." Numerically it is much smaller in application than the other type.

The committee type which is the more widespread has been organized with a variety of differing details, but in general the employes choose their own representatives by vote and these representatives form an advisory body in regard to matters that affect the employes' interests. In some cases the activities of the committee are restricted to the consideration of certain defined topics, but the tendency seems to be to do away with limitations and permit the freest consideration and discussion of any matter that concerns the interests of the workers. To summarize: they cover the wide range of the social and recreational life of the workers, living and working conditions, terms of employment, wages and hours of labor, and such related subjects as labor turnover, continuity of employment, increasing and maintenance of productivity and even, in some cases, the curtailing of production when the condition of the business requires.

A record of 80 conferences held under the industrial representative plan of the Standard Oil Company over a period of fifteen months shows that 141 matters were discussed and settled. The range and importance of topic is indicated by this analysis:

Topic Considered.	Percentage of Whole Number.
Wages	33
Working conditions	11.4
Promotion and discharge	10.6
Hours of working	10
Methods of wage payment	6.4
Industrial representative plan	10
Sanitation	3.6
Housing	3.6
Social	2.8
Miscellaneous	7.8

Difficulties of Operation

Two possible difficulties have frequently been feared in setting up of a shop representative committee plan in a given establishment. The one is how to secure the election of leading, responsible employes, and the other how far does the setting up of such a plan commit the firm to the principle of dealing collectively.

The first difficulty is a seeming one only, for the testimony in case after case is that mature, level-headed representatives are universally chosen. The experience of the Bethlehem Steel Company in three of its plants is significant as shown by the tabulation of the personal records of the employes' representatives.

	Plant		
	Lebanon.	Maryland.	Steelton.
Number of representatives.	33	26	8
Age—			
25 to 30	6	5	5
31 to 35	2	9	15
36 to 40	8	5	9
41 to 45	9	5	9
46 to 50	2	..	6
Over 50	6	2	1
Married	32	24	37
Single	1	2	8
Property owner	..	7	23
Naturalized	2	3	2
Alien	None	None	None
Nativity—			
United States	31	23	43
Ireland	1	2	1
England	1	..	..
Austria	..	..	1
Germany	..	1	..
Length of service—			
1 to 2 years	11	11	4
3 to 5 years	2	1	10
6 to 10 years	5	3	3
11 to 15 years	1	2	4
16 to 20 years	7	5	5
21 to 25 years	3	2	10
26 to 30 years	2	2	7
Over 30 years	2	..	3

The other difficulty is not really a difficulty at all, but is rather a matter of policy. Once the employer consents to the introduction of a representative shop committee into his plant he is recognizing the principle of bargaining collectively with his employes. There is, however, this distinction, that he is dealing with a so-called inside organization, not with a trade union or labor union.

Early to Estimate

It is far too soon to evaluate a movement that is little more than two years old. Its purpose is worthy: to organize the relationship between employer and employe. A conflict of experience prevents a positive declaration of its permanent value, but, quoting from the report of the National Industrial Conference Board:

"Approximately three-fourths of the employers having works councils from whom an expression of opinion was secured declare themselves in favor of this form of industrial organization or that their experience had been favorable."

Based on the record disclosed, the representative shop committee movement deserves careful, unbiased consideration and as a plan merits a fair trial.

* Status of Industrial Relations, Transactions (1919), American Society of Mechanical Engineers.

Producing Better Men to Produce Bigger Dividends

John Leitch's Contribution to the Solution of Industrial Unrest

By a Member of the Staff

NINETEEN hundred and nineteen—a year of industrial unrest!

And yet on a December morning of that year, a group of mill executives—hard-headed business men—sat in John Leitch's office for three hours and a half and listened spell-bound while he talked to them of wisdom and of love. Moreover they had come from Pennsylvania, Tennessee and even as far off as California for the sole purpose of hearing him talk; they had paid a goodly amount of cold cash for this privilege; and they listened as attentively and asked as many questions as a group of college freshmen attending their first lecture.

Undoubtedly a year of industrial unrest, but what is more important still—a year of the beginnings of industrial light. And one of the earliest prophets of that light has been John Leitch.

Readers of TEXTILE WORLD are familiar with Mr. Leitch's plan of Industrial Democracy whereby the executives, foremen, and workmen in a mill are organized into a Cabinet, Senate, and House of Representatives, respectively, patterned after our Federal Government, and whereby a corollary dividend plan provides an additional incentive toward perfect cooperation on the part of the employes. These columns have carried accounts of the actual working of this plan in five plants, four of which were textile mills. In addition, many of the readers have no doubt read Mr. Leitch's book "Man to Man," which has probably created more interest than any other industrial book of recent years.

Marvelous Growth in 1919

There are, however, certain facts concerning the growth of Industrial Democracy during the past year with which they are probably unfamiliar and which should be presented, if for no other reason, than to provide a relief from the unpleasant story of discontent and Bolshevism which has been connected with the year 1919.

It was the good fortune of a representative of this publication to "sit in" at Mr. Leitch's conference with mill executives referred to above and to interview him afterwards regarding developments during the year.

Although Mr. Leitch first installed his plan in a mill some eleven years ago, the year just closed may be called the year of its debut, so far as popular interest is concerned. Up to January, 1919, Industrial Democracy under Mr. Leitch's direction, had been installed in some thirty-four or thirty-five mills. In December this number had grown to about one hundred. These figures were given by Mr. Leitch as approximate. They do not include the great number of mills which have started it independently. Mr. Leitch is continually hearing of its adoption by industrial plants and by great department stores.

Naturally it was impossible for him personally to inaugurate his method in all these hundred mills. His waiting list continued to grow; he was overtaxing his own strength; and yet he realized the difficulty of training a sufficient number of lieutenants in a short enough time to cope with the situation by means of an organized force. He has thus far increased his personnel to three men only.

To meet the increasing demand for his services, he startetd about four months ago this series of conferences for mill executives. The men meet once a week in Mr. Leitch's office. By holding conferences on Tuesday, Thursday and Saturday of each week, he is thus able to take care of three sets of men. These must be all executives.

By means of the instruction in the principles of Industrial Democracy which these men get at the conferences, they are enabled to inaugurate the plan in their own mills. Mr. Leitch does not consider this a makeshift to meet the demands on his time, but firmly believes that his new method insures a permanent growth of the plan in the mills concerned. He is confident that it is first necessary to convince the mill executives themselves—to infuse them with the spirit of Industrial Democracy, and can see no more satisfactory method of achieving this result than by making them directly responsible for the starting of the plan in their own plants. He, in fact, discourages subsequent appeals for his advice, as he thinks it best for them to work out their own salvation.

His conferences take up separately the four cornerstones on which Mr. Leitch conceives Industrial Democracy as resting. These are Justice, Cooperation, Economy, and Energy. The conference which the representative of this Journal attended took up Energy, and the discussion was of such decided interest to manufacturers that it seems fitting to outline it here.

At 9.30 in the morning nearly thirty mill men were waiting for John Leitch to arrive. They all had the appearance of big business men; none of them appeared any more visionary than the average head of a manufacturing organization. But evidently they *had* seen a vision.

JOHN LEITCH

Mr. Leitch arrived with a cheerful "Good morning" and proceeded to pass cigars. He is a tall, spare man with a keenly sensitive face and a firm jaw. He got down to business without any preliminaries. His tone during his talk was a conversational one; only occasionally did his enthusiasm take the form of oratory. He relied rather on cold, hard facts. And yet not for one moment did he appear to lose his audience.

"Energy," he said, "is synonymous with power. Our aim is to apply power so that it will be valuable to the workers, the executives and the stockholders. There are three successive steps for a man or a nation to take in acquiring power. These should be reached in sequence. Unfortunately we have reversed them. Men and nations have sought power directly; some men have piled up money, some have piled up votes—that they might have power. When men try to get the last thing first, they are unsuccessful. The man of power is yet to be born.

First Step Is Wisdom

"Religious history has portrayed how power can be achieved. The first record is between Solomon and his Creator. The Lord asked Solomon what he wanted, and Solomon asked for wisdom that he might guide his people. And the Lord was pleased and gave him understanding.

"Wisdom—this is the first step in achieving power. We do not give our children large opportunities until we show them how to use them. We do not give them matches or any source of power until they know what to do with them.

"In the next stage of Solomon's story, two women appeared before him, each claiming ownership of a child. Solomon ordered a sword and instructed that the child be cut in two and half given to each woman. One woman immediately said 'Yea, do even so,' but the other one said 'No, save the child; give it to her.' Solomon knew love and recognized the latter as the true mother.

Love the Second Step

"Love—this is the second step. Real power cannot be achieved without it. No man or industry will 'arrive' unless he or it takes these three steps in sequence: Wisdom, Love, Power.

"A little while ago we had accumulated on the United States statute books 265,000 laws. And yet poor Mother Nature has only seven laws. I wonder if our laws are not complicated by our ignorance—if we should not strive rather for fundamental laws—including thinking.

"Nation or man cannot break the natural laws. I am not going to ask you to believe them; I'm going to state them as facts.

The Law of Order

"The first is the Law of Order. As we ourselves want to be creators, as we are trying to create a new condition in the industrial world, taking chaos and taking good out of it and establishing order, let us consider the beginnings of this world—before there was an earth. The Creator must have had a wonderful knowledge of order to select from the chaos just the right quantity and quality of this, that, and the other thing which was to be the nucleus which during centuries became this wonderful world.

"We must be careful in building our new industrial world that we especially select the right quality of men. The Creator established a plan—a program—and it was *evolution* of every particle that entered into the world. How foolish we are then to let parts of our industrial world stand still. We've not only got to select but we've got to en-

(*Continued on page 321*)

Democracy is the Expression of Mill Spirit

Merely Another Step in the Progress of the Danville Plant

By a Member of the Staff

"INDUSTRIAL Democracy is an organized expression of the spirit we have for years been trying to foster in our mills," said H. R. Fitzgerald, president and treasurer of The Riverside & Dan River Cotton Mills, Inc., Danville, Va., to a representative of TEXTILE WORLD. And that is the outstanding impression one gets from a visit to that plant. Instead of appearing to be a new venture, it seems to be merely a "carrying on" of the business of building up a right relationship—which business has always received the best thought of the management. If John Leitch's vision of "producing men first and goods second" has materialized anywhere, it has at Danville—and not in the past few months but by steady stages of progress throughout its history.

Mr. Fitzgerald briefly traced a few of the steps of this growth. First there was the kindergarten by means of which children from country districts, many with symptoms of acnemia, were trained and developed until, to use Mr. Fitzgerald's words, "you couldn't tell them from any of the other children in the town." Then schools were built and the best thought given to all phases of education. The next step was social work—not in the sense that this term is often used or rather misused—but by the engagement of trained workers who organized boys' clubs and girls' clubs and satisfied the desire for a "good time" which is inherent in every normal young person. Then came a great big project, the building of a Y. M. C. A.—an industrial Y. M. C. A.—one which fills manifold needs in the mill community. The services of a firm of experts on Y. M. construction were retained and the present structure was the result of long and careful thought. This is situated at the Dan River plant of the company and now has 1,400 members. Its capacity is to be doubled, and also a building the size of the original one is to be erected at the Riverside plant.

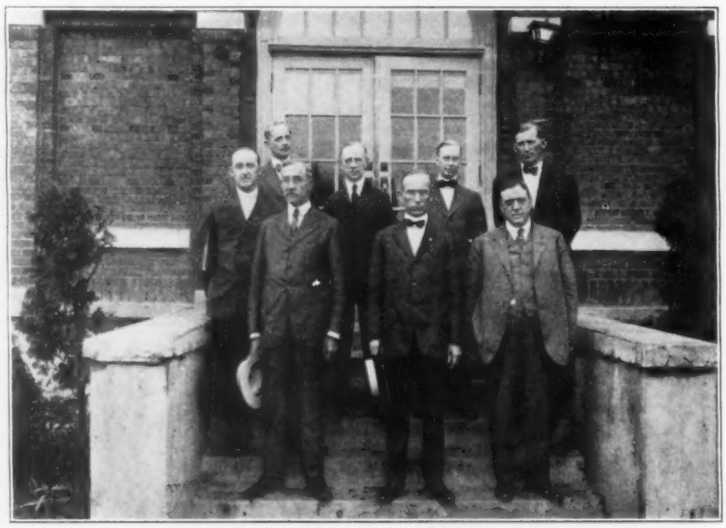
The Latest Step

And now has come the latest and biggest step, the installation of Industrial Democracy, or rather one might say the crystallization of Industrial Democracy, for the spirit was there, waiting for expression.

Employe representation, as applied at Danville, rests on the soundest of foundations. It grew out of the education of the groups in the mill, one by one. First the foremen were assembled and Mr. Fitzgerald emphasized again and again the principles on which Industrial Democracy is based. Then the second hands were given the same course; next the loom-fixers; and finally the rank and file of the workers.

Mr. Fitzgerald gave a simple explanation of why he attacked the problem in this way. "Autocracy," he said, "is usually found in the foremen of a plant. The managements of most firms I know are anxious to give the workers a square deal. It is the fear of the man just above him which usually terrorizes a worker—the gradual breaking down of a desire to submit suggestions to his foreman. Therefore to eliminate autocracy and to introduce democracy, it is necessary to start with the foremen."

That is what he did. And he did it alone. He was anxious to secure the services of Mr. Leitch but the latter was unable at that time to take on any more plants. Mr. Fitzgerald spoke in glowing terms of Mr. Leitch, describing him as one of the "squarest men he knows."



THE CABINET: RIVERSIDE & DAN RIVER COTTON MILLS, INC., DANVILLE, VA.

Educating the Workers

After the seed had been sown in the men who are in a supervisory capacity, a series of mass meetings were held. Each meeting was complete in itself but several were necessary to accommodate the five thousand employes of the two mills. This took place in the latter part of June of last year; members were elected on July 2, and the first meeting of the House and of the Senate took place on July 9, at which time officers were chosen.

Workers Behind It

Mr. Fitzgerald admitted that at first some of the workers thought "something was being put over them." But after they heard his explanation of the plan, 90 per cent. of the personnel was back of it. Within three weeks 95 per cent. had endorsed it, and most of them were enthusiastic about it.

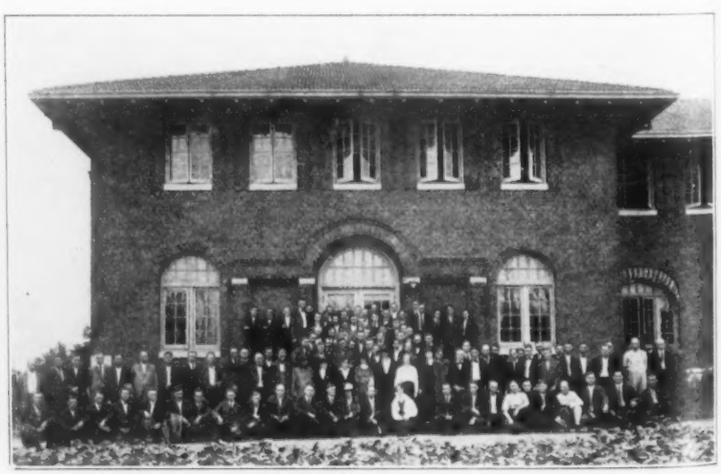
"I can see no reason why Industrial Democracy isn't here to stay," he said. "The people are happy under it and best of all it brings the consciousness that they are reaching out toward the better things of life. Under the old industrial order, each man sought his own selfish ends. The employer wanted to get a maximum of work for a minimum of pay; the employe wanted to give as little effort as he could and get as much for it as he could demand. Nowadays people are awaking to the fact that it is only through co-operation that either side can realize the maximum good."

Practical Results

The actual accomplishments at the Danville mill testify to the efficacy of Industrial Democracy and its accompanying dividend plan. Dividends are based on the four weeks production immediately preceding the inauguration of the method. This was taken as a standard. At that time (which was in June) production was 6 per cent below normal, owing to the general instability of conditions and to the fact that the war had diminished the personnel. By December, this 6 per cent had been made up and in additon production increased to 6 per cent above normal. The actual gain in production during that period was over 1½ million pounds.

(*Continued on page* 429)

THE SENATE: RIVERSIDE & DAN RIVER COTTON MILLS, INC., DANVILLE, VA.



THE HOUSE OF REPRESENTATIVES: RIVERSIDE & DAN RIVER COTTON MILLS, INC., DANVILLE, VA.

Americanism Fostered by Industry

Task of Selling the Principle to the Foreign Born Up to American Business

By *Francis A. Keller*, Associate Managing Director of The Inter-Racial Council

BETWEEN those who would Americanize aliens and those who would ostracize them, there appears to be no peace and no cooperation. Where does it all lead to, and what is its cost to business?

Americanization was officially born as a war measure in 1915 when July 4th was made Americanization Day and the foreign born were united to join with native born citizens throughout America. Americanization committees were organized throughout the country to interest the immigrant in war work, to teach him the English language, urge him to become a citizen and secure native American cooperation.

The Committee on Public Information made a survey of the agencies at work with the foreign born and found two thousand different agencies with twenty-three thousand branches; the Bureau of Naturalization sought to create a Bureau of Naturalization and Americanization; the Bureau of Education introduced an extended program; the Council of National Defense started some work.

Americanization became a popular American Governmental activity. Officials began claiming it as their favorite pastime, and carefully blocked everything anybody else was trying to do.

Americanization was destined to a period of failure from the start. For many years the immigrant had been neglected on arrival, exploited, crowded into colonies and settlements, ignored and considered only as an industrial asset. He did not know Americans except at work, or associate with them or speak their language or read American newspapers, or use American banks or other business institutions.

Early Campaigns Fail

When America awoke to the fact during the war that it had alien enemies, that it had both aliens and citizens who would rather fight in a common cause under the flags of their former allegiance than under the American flag, and that it had thousands of men who could not take a military order in the English language, it did a characteristically American thing. It organized a campaign, hoping by a campaign of educational imposition to change a situation rooted in centuries of racial history, culture and traditions, hoping that it could make friends of men who for years had not been spoken to; that it could win allegiance from men who knew the oppressions rather than the opportunities of American life. America's opportunity to Americanize its many millions of immigrants had gone by. There was a change in the world's play that was against it; what would have been easily accomplished in 1913, became impossible in 1916 with the coming of the war. School rooms were emptied and classes in English were silenced and naturalization fell off. Men who had never expected to see their home countries again, lined their faces toward the sea and began to dream of going back. Why?

During all of the years when Americans ignored and neglected the alien, he was solidifying his ranks here. He joined his own societies, he opened his own shops to serve his countrymen. He imported goods from home that they liked. The racial bank became as powerful an institution as the racial employment agency. Eight million immigrants subscribe to 1,500 foreign language papers and many millions more read them. There is no need in an immigrant's life that cannot be satisfied by one of his own countrymen, or from his own county.

Racial Influences Strong

Every foreign born male adult speaking a foreign language belongs to a racial society, and in social and economic life the racial cleavage is complete. When the war came, each racial group wanted to become a better "foreign republic" vitally interested in winning the war for its home land. Each group followed the fortunes of its home land. Whenever racial antagonisms broke out abroad, they were duplicated here. America, except as a land in which to earn money and help the homeland was forgotten and ignored as completely as America had long ago forgotten and ignored them. They worked overtime. They bought Liberty Bonds. They saved money. They helped win the war. For America? Not at all. They helped win for their native lands across the sea, and we ourselves found it necessary to use these arguments to secure their cooperation during the war.

When peace came there was no change in the situation. Racial solidarity was encouraged by Washington authority to help win the war. Very well, racial solidarity would use its power to settle political matters abroad and to see that the home country got a square deal.

Americanization found itself blocked by a stone wall of racial solidarity intensified a thousand fold by the war. A million men suddenly saw their future in their own native land with all the freedom and opportunity that they had hoped to find in America. They saw the market for their investments transferred from Liberty Bonds to the securities of their native land. They saw their labor not in American dollars but in upbuilding the homes and industries of their native land. They were deaf to the appeals to learn English, to become citizens and to stay in America. They were cold to American advances and suspicious of American friendship.

WHY?

Bolshevist Propaganda

Now there enters into this scene the Bolshevist with his plan for giving the workers control of the world. Thousands of members of the Communist Party have no interest in the American government. They joined in order to return to Europe and to see their dreams realized in their home land. This explains one of the reasons why the immigrants have responded to the propaganda.

The weakest spot in American industry is unskilled labor. More than 50 per cent of this labor in basic industries is foreign born. The Bolshevist knew that housing conditions and wages and hours and working conditions, plus the early experience of the immigrant in America, were just bad enough to give him the hearing he wanted and he got it.

The result, however, among the immigrants was not what he expected. Instead of uprising against the Government, he decided to return home. A million of them are waiting to get out as soon as there are ships enough and passports enough to let them go home. The delay in settling affairs in his home land has unsettled him here; caused a slump in his production and made him lose heart and interest.

Following the Bolshevist, enters the "Red Hunter." The growth of the Communist party and the spread of propaganda which flourished during the war, but against which the vast war powers were never used, have caused alarm in many quarters. The immigrant workmen became the object of the hunt. According to the Attorney General "there are no laws to reach the citizen."

There is begun a campaign of raiding and deportation which, whether intentionally or not, strengthens the hands of labor, checks future immigration and starts thousands of other aliens not only thinking about going back but fleeing from a land where they are not to be permitted, it seems, to use their native language, to read their newspapers and magazines, to express their own traditions and culture, or have the respect and friendship of Americans.

Americanization as carried on in the past by desultory civic and social agencies, by spasmodic campaigns of imposition, by drives for new Americans, is clearly no match for the forces of social solidarity, of Bolshevism and of "Red Hunters" that block its path and negative its efforts.

The same scene necessarily shifts from philanthropy and patriotism and politics to economics. Daily through the fog, Americans are beginning to see that the only answer to Bolshevism is production and thrift and the only agency that can make it successful is organized business.

Seeing the Light

Likewise business is beginning to see that it must pay the toll exacted by the "Red Hunters" in lower production, higher cost of production and loss of manpower. Needing as it does 4,000,000 men and facing a 40 per cent reduction in output, the toll may be said to be fairly heavy, especially when it may eventually be reckoned up in lost markets. Immigrants can be interested to stay in America; they can bring over their fellow countrymen. It is not to be done in a day; nor by stereotyped commercial methods. As an illustration of how delicate and complicated this international question of keeping men in America is, may I give you one instance? Those who think that high wages and luxuries are the best appeal do not know the immigrant.

More than anything else in the world the immigrant wants to hear from

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South Manchester—A Model Textile Community

Cheney Brothers' Scientific Socializing and Industrial Methods

Certain persons who regard themselves as advanced thinkers assert that all industry should be operated for public use and service and not for private profit. It may be that they are right, and that we poor misguided, materialistic, imperfect creatures are all wrong. Nevertheless, we find it difficult to visualize the existence of such an industrial Utopia much short of the millenium.

Meanwhile, these idealists may find circumstantial evidence of the correctness of their theory in certain progressive industrial communities in this country, where the welfare of the workers and their families, the working, housing, social, recreational, educational and religious conditions are as zealously considered by the heads of the industries that make such communities possible, as are production and profits.

If these dreamers will but withdraw their heads from the clouds they can see dozens of such communities in the textile industry, embodying everything that makes for a contented American, and that spells opportunity for the individual and the family, without loss of self-respect and without the slightest trace of charity or paternalism.

One such community is South Manchester, Conn., created by Cheney Bros., silk manufacturers, a family which for several generations has given a visual demonstration of its high regard for the welfare of its employees. Coincident with the growth of the business there has been an equal or greater improvement in the community itself, each, however, being directly dependent upon the business ability of the Cheney family. While this particular industry may now have reached a point where the incentive of public or community service may be as important an impelling motive as profit, it is reasonable to assume that at some earlier stage it needed the incentive of profit to stimulate maximum exertion for self and public. If South Manchester and other similar communities fail to meet the Utopian conditions promulgated by impractical idealists, they at least approximate an industrial and social ideal that may well form the goal of the average manufacturer for many years to come.

THERE are many instances today of splendid efforts to make the most of opportunities to improve the social and industrial environments of more or less isolated communities of textile workers. But there are few places where such development has attained the comprehensive scope to be found at South Manchester, Conn., the home of the Cheney Brothers' silk manufacturing plant. Here is a most remarkable demonstration of a far-seeing organization and its methods for providing, not alone the best to be had in industrial equipment, but the most complete, and at the same time consistently esthetic, layout of socializing equipment as well.

The Environment of a Democracy

To those who think that democracy does not provide the environment favorable to the harmonious development of art and culture of beauty, and at the same time carry on that type of intensive scientific development of industry which is so characteristic of the United States, here is the answer. For at South Manchester there is a demonstration of not only what the environment of such industries might be throughout America, but what they ought to be. It smacks of the unappreciative to say that such things ought to be; but when we make comparisons with the ideals of this country, we are calling for high standards, in consonance with the best that the world has produced. Moreover, there is such unanimity of opinion among industrial leaders of America on this subject, that such a thought cannot be controversial. It is the demonstration, such as Messrs. Cheney Brothers have made, that is wanted and sought by the captains of American industry today. For that reason its message should be spread among them. We all should welcome a demonstration of the harmonizing of the ideals of democracy and industry.

Velvety Lawns and Mirage Scenery

But while many communities could attain much along these lines, we realize that not all are favored with such an ideal natural environment. Such velvety grass as carpets South Manchester lawns cannot be produced in some regions, nor can such trees be grown in all climates. Yet all regions have their distinctive types of natural beauty, and the skilled landscape architect is quick to take advantage of them. It is the harmony and artistry of the whole, however, that is exceptionally impressive in this case, for the essential appreciation of the esthetic is shown here at every turn of the road. Where nature has done well the landscape is natural, but the artist has not hesitated to blend his work with that of nature wherever the result could be improved.

A Simple Democracy

One does not realize when he has reached the factory center of the community. There are no obtrusive signs of ownership. The community so merges with the private plant surroundings that probably nothing but the town records could define each. Fences are conspicuously absent. Workmen live near and around those for whom they work, but the workers may, and many do, own their homes. They live in a community controlled by large interests, but they are free to come and go as they believe they can better themselves. They are not so tied that their children are bound by strings of any nature to prevent their growth and future change of environment, if they desire. And their homes are theirs to do with as they see fit. They are simply surrounded and bathed in the environment of an influence which would make any lowering of individual standards of living conspicuously out of place. The simple democracy of the place is ideal.

THE MILLS OF CHENEY BROTHERS, SILK MANUFACTURERS, SO. MANCHESTER, CONN.

Arrangement of the Plant

The Cheney Brothers' mills have a rather isolated location in the valley of the Connecticut River far away from the New Jersey and Pennsylvania silk centers, and employ nearly five thousand people. They could use hundreds more workers of the right sort if they could obtain them. This fact accounts in part for the effort made to educate and train in best production methods, not alone their present employees, but as many as possible among the children of the whole community who may be inclined to follow the silk industry. This policy has kept Cheney Brothers from suffering from the acute shortages of skilled labor which some other silk manufacturers have felt, and are experiencing now to an intense degree. It has done much to assist them in making this industry the largest plant of its kind in the world, and one of the finest in the country.

The silk mills are located in a large park. Scattered near the mills are the residences of the owners, from which family no less than fifteen members are daily employed in the mills. In this way the intimate touch between the owning and operating elements is kept in closest adjustment. Smooth, winding drives and walks lead from the mill entrances to the residential sections. Outside of the park section the pleasant homes of the workers, ornamented with vines and shrubbery, give the whole community an air of comfort and prosperity.

There are thirty-six acres of floor space in the various mills, all of which are located in groups so that each mill has a pleasant outlook into the park system. Every mill is equipped with a ventilating system, and usually with an air conditioning system as well, the Cramer and Carrier systems being conspicuous. When the visitor goes from one floor to another the rapid flow of air through the hallways is plainly noticeable. The resultant effect is comfortable and healthful to everybody, as personal and material appearances abundantly speak.

Safety and Health Precautions

Everything that can contribute any real results is done to protect the comfort and render safe the persons and health of the men and women in the big plant. The mills are mostly ivy-clad, built of brick or concrete. They are unusually light and pleasant. Every employe has a locker for clothes. A doctor has his office at the mills and does nothing else but look after the health and injuries of the employes and the sanitation of their homes and the plant. A score of first aid rooms with nurses are scattered throughout the plant.

The Labor Turnover

It is but a natural result that the labor turnover at the plant is relatively low. Careful records are kept, and it is to be noted in this connection that they show more than 350 persons who have been with the company from 25 to 50 years. In addition to this, the majority of the nearly five thousand operatives have worked for this firm more than five years. The actual labor turnover in this, as in most well managed plants, is thus found to lie in the continued replacement of a relatively small percentage of the operatives who come and go.

The health and happiness of the community are guarded not alone in the factories but also in the schools, where every effort is made to develop the weaker members to robustness, and to give the stronger every chance to realize their best. Intensive watch is kept out for children's contagious diseases which are not allowed to ravage South Manchester as they do some other communities. Here such things are fought to a standstill. It is claimed that this town has the best health records of any place of its size in the United States.

The Types of Homes

There are several types of residences in the town, but the prevailing type among the operatives is that of the double house with separate entrances. There are no tenement blocks in the place. This type of double house has developed from the encouragement given to this mode of construction,

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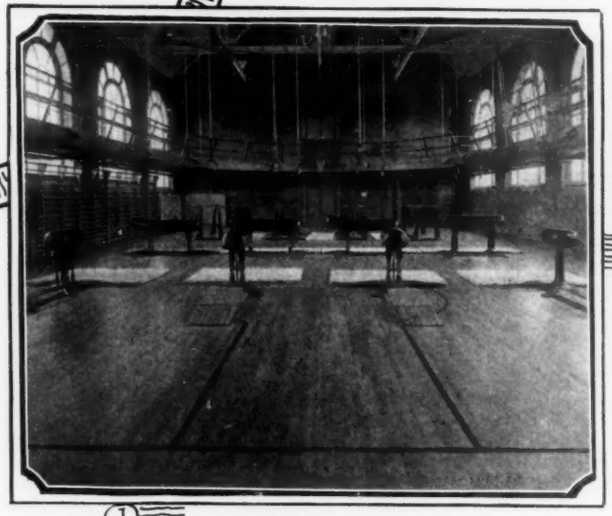

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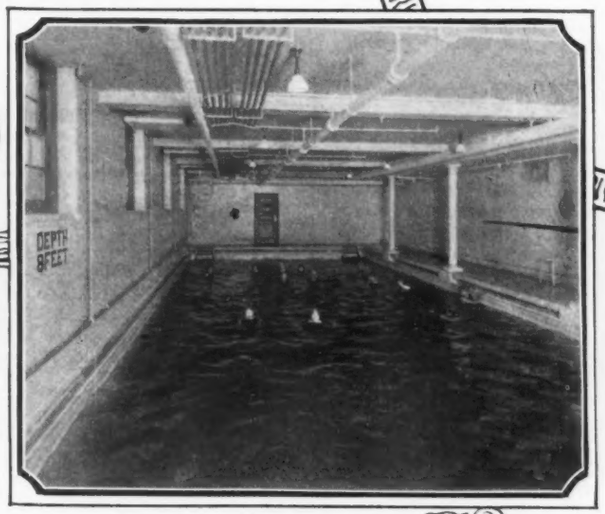

SWIMMING POOL. PART OF THE TIME FOR MEN AND WOMEN 2

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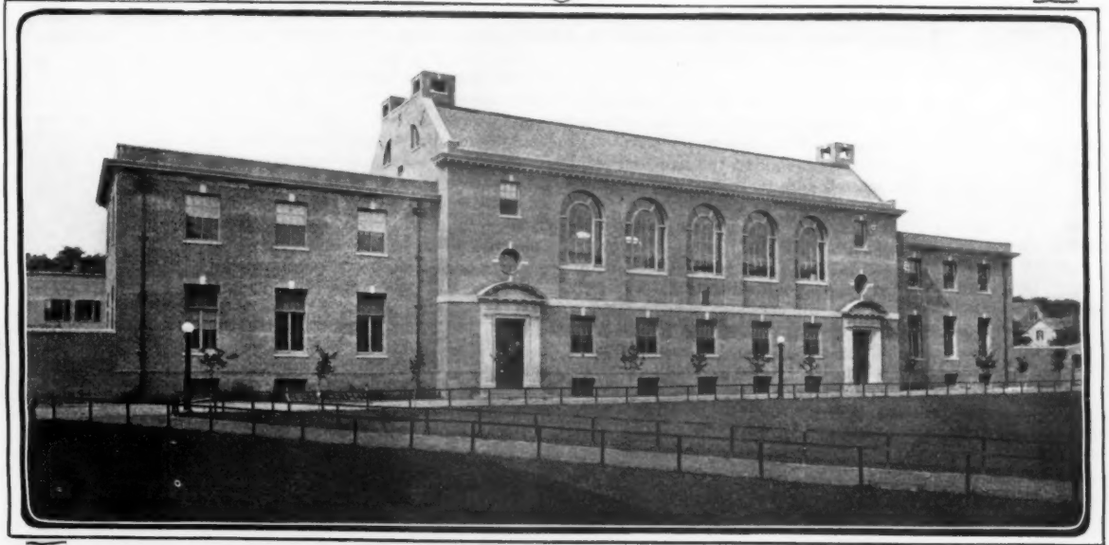
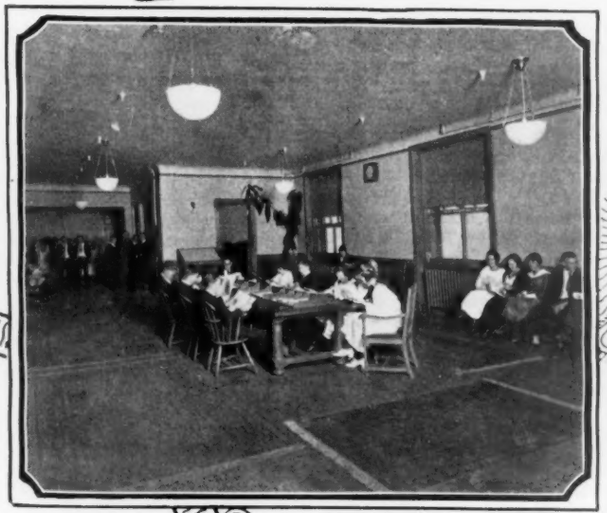
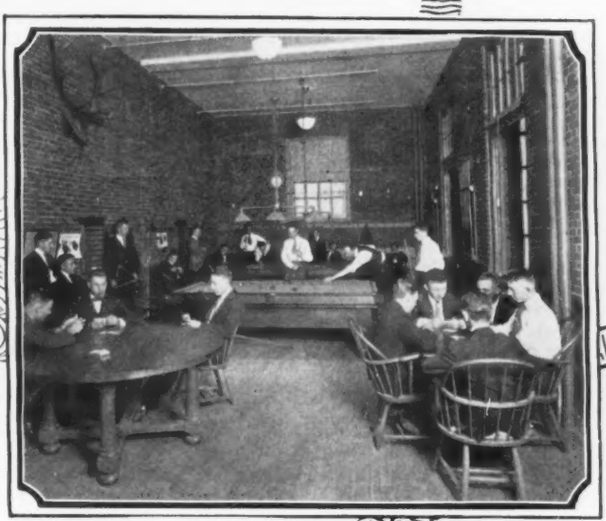


RECREATION BUILDING, SEEN FROM RECREATION CENTER OF CHENEY BROS., SILK MANUFACTURERS, SO. MANCHESTER, CONN.



3 MAIN LOBBY AND READING ROOM



MEN'S GAMES ROOM 4

Employment Problems in Textile Industry

Importance of Right Living, Working and Social Conditions—Personal Contact Has No Artificial Substitute

By *Harry W. Kimball*, Personal and Employment Manager, Arnold Print Works

Becoming obsolete is the old idea that the relation of capital and labor is one of contract solely, in which a man sells his services at a certain wage, and where, if either employer or employe feels that the bargain is not a profitable one, he can void it without thought of its effect on the other.

"The new relation is that of fellow workers with common interests, and this gives new rights and added duties to both.

"Because the management is intelligent and powerful it must take the initiative and prove by its acts to the workers that a new ideal has entered into industry.

"This does not necessarily mean that some novel scheme of individual democracy shall be established, simply because it is offered as the latest panacea for labor unrest, or even that an elaborate system of shop committees shall be put in operation, but it certainly does presuppose that the management has determined to deal fairly and justly with the workers, consulting them where it seems wise, seeing things from their point of view and ever remembering that they are human beings.

"It is surprising how ignorant many managers and agents are of the mental and emotional reactions of the workers. They have never taken the time to study the employe's standard of a square deal. Unconsciously they do many things which irritate the workers, or forbid things which the workers conceive to be only right and just.

"The employes of any mill are individual units, not standardized machines. Although hundreds of them may have exactly the same work to do, yet each one is a thinking, feeling and willing being.

"Each has his own mental attitude and emotional makeup, determined by heredity, nationality, religion and training. He is not a machine and cannot be treated as a machine. His reactions to his surroundings and to his treatment influence the quality and the quantity of his work.

"While mental and emotional friction cannot be measured as accurately as mechanical friction, yet it exists and the business of the modern Personnel Department is to discover the points of friction, analyze them, and supply the right kind of lubricants."

THE basic principles of employment practise are common to all industries. They are as adaptable to a textile mill as they are to an automobile plant. However, it is very common for managers, technically trained, to feel that the industry to which they have given their life thought has peculiarities all its own which forbid the adoption of methods and principles applicable to other forms of manufacturing. In their minds the physical and chemical processes are supreme and the other aspects of the industry are of minor importance. Probably this is the real reason why the textile industry as a whole has only recently awakened to the value of personnel work, and has just begun to develop service departments which, in the near future, will rank among the best in the country.

But as the principles of efficiency are elemental and unlimited in their application, so also the methods of employment practise, and the psychological laws upon which sane dealing with the workers must rest, are also elemental and applicable to any industry.

Safety, Sanitation and Health

Probably more than in most industries the best approach to the labor problems of the textile industry is through safety, sanitation and health. Textile workers are apt to be careless, ignorant of the dangers of infection and disease, not always cleanly, and many of the alien rather prefer to herd together in their habitations. They have borne the ill effects of accident and sickness with a stoicism handed down through several generations. They have accepted these ills as the customary lot of their class, without much thought that they could be alleviated, and without dreaming that in large measure they might be eliminated. The patient bearing of human ills on the part of these workers, the resignation with which they accept as inevitable the troubles, which with wisdom might be avoided, is one of the fine traits which endear these folk to those who understand them.

It is very important that all the dangers to which these workers are liable should be carefully explained to them and that during the first few weeks of employment they should be frequently reminded of them. It is often wise to have a simple form which must be filled out by the overseer, or whoever instructs the new worker in his duties, certifying that all possible dangers have been pointed out.

It is also certainly worth while to introduce each new worker to the infirmary and to the nurse, that he may be impressed with the provisions which have been made to care for his physical needs. This will give the nurse an opportunity to caution him regarding possibilities of infection, and the necessity of promptly coming to the infirmary with all cuts, punctures or scratches. This presupposes that the plant has a modern infirmary, fully equipped, in charge of one or more registered nurses. Any plant is almost hopelessly out of date which does not have such a health service department.

The workers will soon learn to come to the infirmary, not only for accidents but also for minor ills. Prompt treatment of these by the nurses will not only save much lost time but also many a serious illness. If the nurses find the opportunity to visit the workers who are sick in their homes, the blessings of this health work will be multiplied, and points of contact with the homes will be established which may prove extremely valuable. At the infirmary sound advice can be tactfully given, proper diet for the anaemic may be suggested, and simple health literature distributed.

The average textile worker will appreciate this care and training along health lines and will come to consider it one of the assets of his job.

The sanitation of the plant should be of the very best. Toilets, wash basins, lockers and floors should be a constant lesson in cleanliness. Expense should not be spared in the care of these. That they may be immaculate should be the aim. In time the reiterated impression will have its effect, not only in the mill but also in the homes of the workers. In a word, the same thoughtfulness and care should be given to the physical welfare of the worker as is taken for the material product, or with the shining pulleys and shafts of the power plant. The quality of the manhood produced is certainly of at least as much importance as the quality of the goods.

The Care of the Unskilled Worker

This campaign for safety and health is especially necessary in the textile industry, because so much of the labor is unskilled. Many of the jobs can be done with scarcely any training, and automatic machinery has been so developed that a minimum of brains and thought are required to care for them. Because so many of the processes are so simple there naturally gravitates to the textile industry the less intelligent worker. He has not the ambition or the ability to climb and must be content to do through life the routine and comparatively simple task. Such workers always remain children in many of the essentials of living. They need care and help. While paternalism in industry is to be frowned upon, because it is resented by the worker, who is very jealous of his independence, yet among the textile workers much may be done to aid them to better and wiser living.

A plant paper for the employees can be very effectively used, and even when the workers do not themselves read English it will be found that the paper is carried home and read to them by their children. Noon meeting talks, brief, crisp and straight to the point, will drive home many a truth and what is said will be discussed at the gate and wherever the employees gather. Bulletin boards, where many attractively printed bits of wisdom can be tacked, and where sometimes a short personal message can be given, will always help. It is the cumulative and reiterated truth which is effective as it gradually sinks into the mind of the worker and takes fertile lodgment there.

Sick Benefits and Insurance

Because sickness is one of the most dreaded hazards of the worker, usually carrying financial stress in its wake, a mutual benefit association with weekly sick benefits will be a much valued organization. One has only to hear the words of appreciation for this protection in plants where there are successful benefit associations to realize that the development of such an association is a real service to the workers. Group insurance, now so widely adopted by manufacturing concerns, is especially applicable to the textile worker because he is not likely to be provided with ample life insurance protection. Small industrial policies are usually the limit of his life insurance investment.

Should Encourage Thrift and Home Building

Encouragement of savings can also be undertaken with the certainty that such work is a real benefit to the employees. Many plants are now offering to accept weekly savings in as small sums as 50 cents, and are paying interest varying from 5 to 7 per cent upon the weekly balances of the savers. If it does not seem wise for the plant itself to handle the savings of its employees, arrangements can probably be made for some savings bank to send a man to the plant weekly to receive the deposits of the workers.

Encouragement of home ownership is a natural sequence to all thrift work. The love of the land is a trait that others beside Anglo-Saxons possess. All peoples long for a bit of mother earth and a shelter over their heads which they can call their own. This desire for one's own hearthstone and rooftree is almost universal, and cliff dwelling and tenement blocks have not yet stifled it in the average heart. Possession of soil and home spells contentment in the soul of the worker; it makes for permanency on the job, thereby reducing labor turnover; it clears the way for good citizenship and 100 per cent. Americanism; and it goes far in making possible a serene old age, taking from the breast of the average man his haunting fear of dependency.

Creating Mill Loyalty

In social and athletic activities the aim should be to help the workers to help themselves. The initiative must often come from without, but the work should be done by committees from among the employes. It may seem that these activities do not concern the management and that the workers should be left entirely free to find their own pleasure. But plant spirit and plant loyalty are subtle things. Strong as steel bands, they are sometimes as evanescent as summer clouds, and one of the incidental ways to create them and perpetuate them is to get your employes to play together. The comradeship gives a tangibility to the fact that they are workers together for the ———— Cotton Mill. When they cheer the basket-ball or base-ball team, when they gather as a great big family on their outing day, when they have their own dance or minstrel show something of that same spirit is aroused which has made school and college loyalty so fine and masterful.

Certainly this program for the care of the textile worker is not to be

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The Goodyear Three-Shift System

Maximum Production with Minimum Equipment—The Community Development Problem Involved

By a Member of the Staff

Only by decreased consumption or increased production can an adequate supply of textiles be provided to meet world needs. The manufacturer's share in the solution of this economic problem is in devising practical methods of increasing production. Lord Leverhulme, the English soap king, operates his machinery night and day with six hour shifts in order to secure maximum production, and describes the plan as "sweating machinery."

The Goodyear Tire & Rubber Co. has been "sweating machinery" in the manufacture of automobile tires and other rubber products at its Akron, Ohio, plant for many years, and it was only logical that, when they commenced to manufacture their own tire cloth, they should have considered the adoption of the same plan to the operation of cotton machinery. Because it was such a radical innovation in this industry they approached the problem with caution and inaugurated the three-shift system only after a careful study of every factor involved. The results and the many problems of mill management and community development that are involved are described herewith. If it does not convince manufacturers that the plan is generally applicable to the cotton industry, it at least demonstrates that something more than machine operation is involved, and that much of the success attained at the Goodyear plant was due to the broad-minded manner in which community and social problems were approached and handled.

UNDER the present stress of inadequate production of all lines of textile equipment, the imperative need of the maximum possible production from all existing machinery, together with the requirement of every possible economy in manufacture, call for strenuous development of methods to meet the situation. Efforts of any sort which show new possibilities in either successful economizing, or successful community handling, are more than interesting. They demand instant attention.

A project worthy of this notice is that of the Goodyear Cotton Mills, Inc., at Killingly, Conn. Here is an example of both the successful manipulation of a minimum of equipment for maximum production, and the accompanying skillful handling of the necessary community development to go with it. For the developments of Goodyear are something more than a mere growth of a branch of a large corporation. They are nothing less than a demonstration of the broad achievement of the right thing in a community's character, based upon an intensive commercial project which makes this result possible.

There is at Goodyear the commercial foundation on which the best of such community developments must be expected to rest. The company handles a staple, high grade product (tire fabric) into which the best of brain, brawn and material can be put with the realization that the effort will pay, and that results are reasonably certain with good management. Yet this is a foundation to be had by any live community in this country to-day; and if it does not happen to exist, it should be the first thing sought.

Given the sound commercial foundation mentioned, the next requirement is that of a governing element which interprets itself as a stewardship not to be sullied by prejudices or any motives out of line with the interests of each and all. To such a man, a practical religion of service, and production of the fundamental values which make the whole proposition a success, combine to give the opportunity of a lifetime for the best that is in him. Such an opportunity is being realized here to an unusual degree, and in a manner worth studying and consulting.

The Hours of Labor

There is nothing done at Goodyear which could not be duplicated anywhere else. But one of the fundamental things done there is generally conceded to be difficult of accomplishment by most concerns. That is, the employment of the three-shift system, and operation of the greater part of the plant for twenty-three out of twenty-four hours of the day. This procedure is the very crux of the whole scheme. Not that this scheme of operation is held to be the cause of all of the results obtained, but the successful handling of three shifts of workers is the achievement making possible, and even easy of accomplishment, all that is built upon this advantage.

The actual hours of operation are from 6.30 a.m. to 3.00 p.m. for the first shift; from 3.00 p.m. to 11.30 p.m. for the second shift; and from 11.30 p.m. to 6:30 a. m. for the third shift. The equipment is idle one hour each day for lubrication of bearings, which, of course, is scrupulously carried out. This time includes a half-hour for lunch from 6:30 to 7:00 p. m. The necessary oiling mentioned is done by an arrangement between section hands from each shift, whose work overlaps a half-hour to accomplish this. The overseers also overlap one-half hour in their stay. It is this overlap in the management of the shifts which is depended upon to prevent neglect of work by operatives of one shift leaving ends down, machines stopped and bring-ups for the next shift to straighten out. These things do not occur under the arrangement at Goodyear.

Hours and Wage Adjustment

The rates of pay in the plant are based upon the standard rates paid to the first shift, which begins work at 6:30 a. m. and finishes at 3:00 p. m. Inasmuch as this is the shift regarded naturally as the most advantageous by many workers, the rate of pay is lowest on this shift. The second shift is paid at rates 5 per cent higher than those of the first shift, and the third shift is paid 20 per cent higher rates than the first shift.

It is obvious from study of the schedules of the different shifts that the length of the working period is progressively lessened, being eight hours for the first shift, seven and one-half for the second shift, and seven hours for the third shift. The third shift is the only straight run, without the half-hour lunch recess, during which, with the other two shifts, oiling is done by the section hands. This resultant differential in rate of pay enables operatives to equalize their earnings for all shifts.

Bonus for Perfect Attendance

Time clocks are used throughout the plant of the Goodyear mills, and each operative is made to feel the reward of merit for perfect attendance by receiving a 5 per cent bonus for such a record. In attaining this record, however, no excuses are offered or accepted. Nothing whatever is accepted as a justifiable reason for granting this bonus except a perfect set of time cards which show the presence of the worker on his job for the full period of the shift, and without being excused, or ringing out a few minutes early at any time. This arrangement does away with arguments, hurt feelings, and favoritism of any kind, and works out with entire satisfaction.

The Piece Work System

In addition to the time clock and time bonus in force at the plant, about 95 per cent. of the operatives work on a standard piece work system through which their earnings are adjusted to production. This applies to all shifts, as do all the other conditions in vogue at the plant. The result is that operatives earn satisfactory wages, which, under living conditions maintained at the Goodyear plant, bring something more than ordinary prosperity to families employed there. There is no dearth of help under these conditions, and the spirit of contentment and enthusiasm pervade all of the activities of the industry as well as its social atmosphere.

Production of Tire Fabric

These conditions of operation and organization account for the great production of the plant, which with 600 operatives turns out 155,000 to 160,000 pounds of tire fabric yarn per week. The almost uninterrupted production night and day of all the equipment accounts for this result. One department cannot lag behind another under this system, nor does an operative by day produce more work than a corresponding operative does at night, for speeds of machinery are constant. The piece work system takes care of this at fair rates, which keep everybody interested to plug along at a fair speed. As to the quality of work, nothing but the best is tolerated from each shift. It is alike from all in this respect. But their production of tire fabrics on only 80 fabric looms enables them to use 50,000 pounds extra yarn every week, which they buy.

Size of the Mill Village

When management of the present mill site was undertaken by the present agent some years ago the old homes and mill of the Williamsville Manufacturing Co. constituted a deserted village. Many of the old-style houses remain, but are much improved, and new ones have been built till the number of homes in the place at present is 180. Plans are in progress for 30 more. Those already built are constructed in modern fashion, modest but thoroughly suitable. They are comfortable and satisfactory for home makers, who alone are desirable for permanent members of the village. In addition to this improvement extensive road and boulevard developments were completed last fall.

The Factory Organization

The factory organization, as Manager Robert W. Boys conceives it, is to make the plant one big school for a normal progress of all operatives. It aims to graduate a finished product in the line of mill men, thoroughly qualified not alone as specialists in any one department, but in all departments. Such is the actual result being produced today, and many men have taken remunerative positions elsewhere who were trained completely or largely by the system in vogue at Goodyear. Nothing could bear more substantial testimony to its effectiveness. The details of methods which produce this result are worthy of study.

The Executive Council

Every Thursday morning is held the weekly meetings of overseers and other executives, who meet to discuss not merely the current problems of the plant but also to read papers on any subject of interest or as requested by the Executive Council composed of these executives. At this time are made the regular tests of breaking strength, elasticity, etc., of the plant's product, together with other special tests suggested by the councils. The arrangements of conducting tests are carefully worked out to bring into the organization the feeling of mutual trust and good fellowship. In this effort they are extraordinarily successful because of several practical features which bring exactitude up to a high notch in their procedures.

The Testing Room

The meeting place of the council is the testing room of the plant. In it are placed a conditioning machine which puts all the yarn, fabric, etc., to be tested into standard hygrometric condition, so that the elements of this well-known factor in strength cannot set up differences of opinion or friction. Also here are located scales and measuring instruments for weighing and measuring samples of roving, yarn, waste, etc. It is customary also for one overseer to weigh the samples of others and to submit his own to the unprejudiced scrutiny of the others in the same manner.

Discussion of Shop Problems

In discussion of shop problems "passing the buck" is a pastime which brings a prompt demand for facts and reasons, and hence confines it very closely to the justifiable. But the outstanding result of these conferences, and the atmosphere they set up, is that there is the clearest possible development of faultless dealings among the men. Every man puts his "cards on the table," and there

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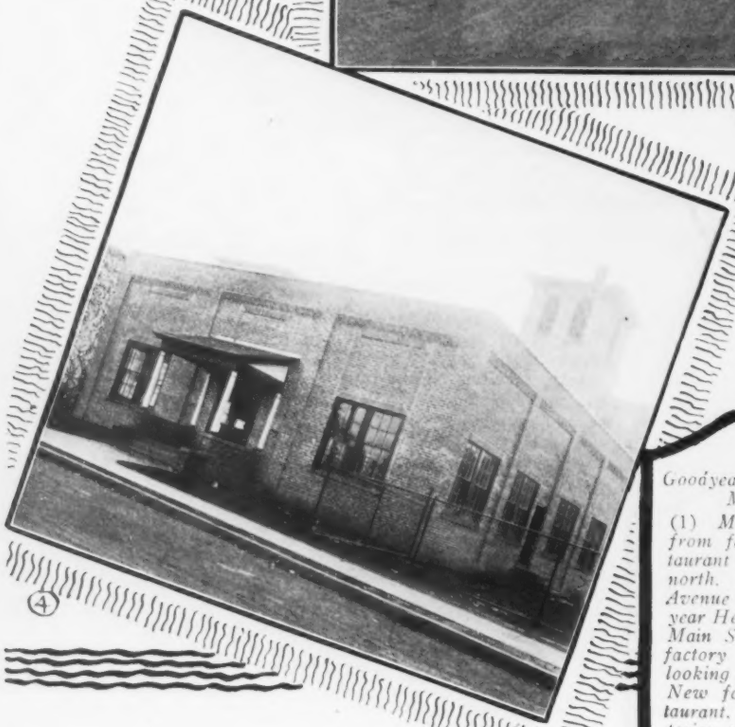


Goodyear Cotton Mills

(1) *Main Street from factory restaurant looking north.* (2) *Boy's Avenue on Goodyear Heights.* (3) *Main Street from factory restaurant looking south.* (4) *New factory restaurant.* (5) *Interior of new factory restaurant*

The New Spirit of Co-operation

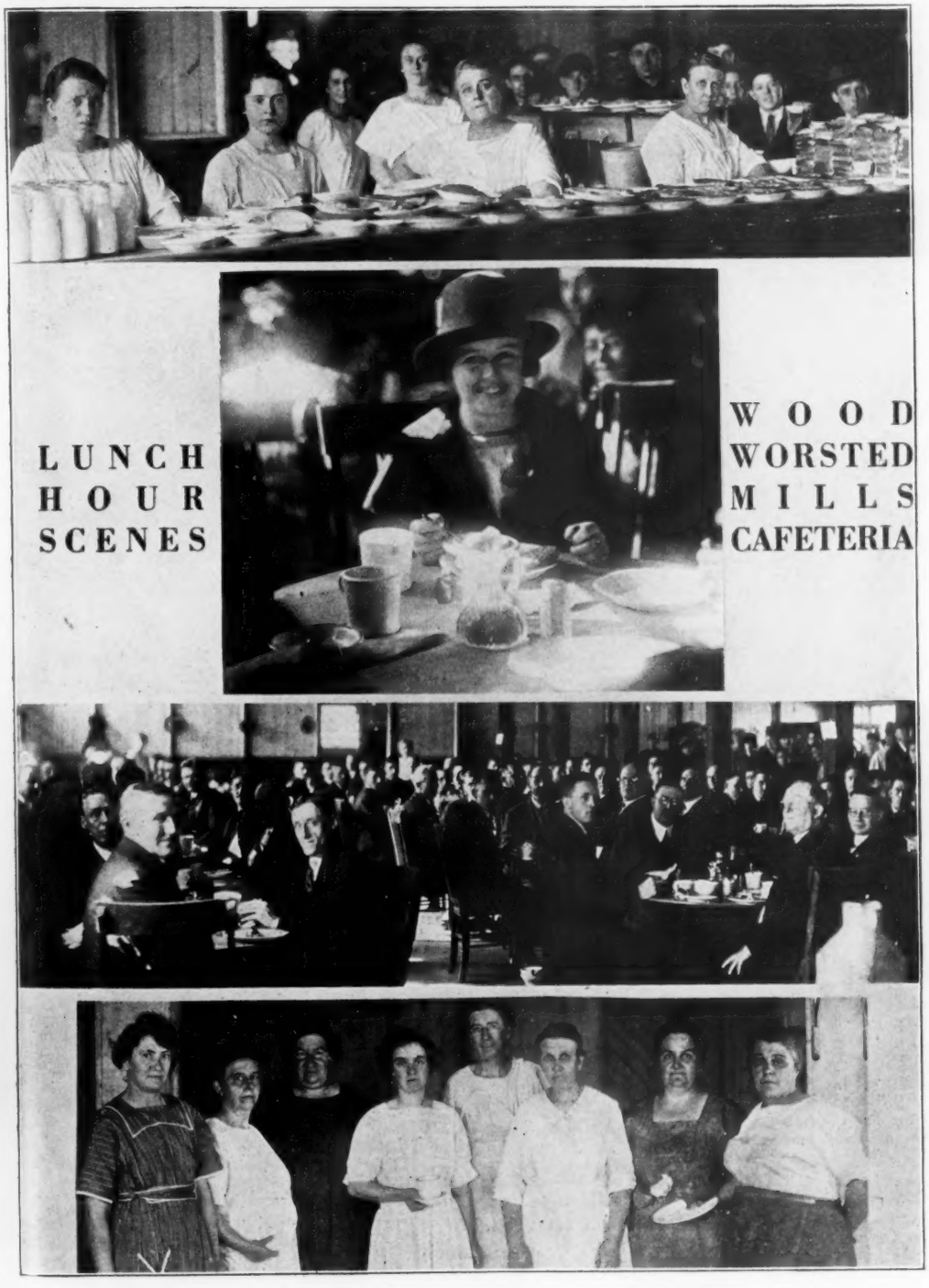
Activities of Representative Mills in Furthering Common Interests of Employer and Employes

By *Samuel Sayward*

"LABOR and capital are partners, not enemies; their interests are common interests, not opposed; and neither can attain the fullest measure of prosperity at the expense of the other, but only in association with the other." Such is the first paragraph of the reconstruction pledge of American business, adopted by more than five thousand business men gathered from every state in the Union at the Reconstruction Congress in Atlantic City. Such is the foundation upon which welfare work is now being carried on among the textile industries of the nation.

Welfare work among textile employes is almost as old as the industries themselves; yet welfare work at all times is surprisingly new. The principle of keeping employes contented and the various forms for bettering conditions and increasing the opportunities for ambitious workmen are as old as work itself; yet the various forms in which such work is carried out, and the surprising results which are obtained, are as new as the most recent improvement to the most modern piece of machinery.

There is no end to the variety of forms in which this work is now being carried on and enlarged year by year. The larger the industry or the plants of that industry, the greater the opportunity for successful welfare work and the more extensive the variety of forms in which the work can be carried out. From the Christmas gold piece in the holiday pay envelopes to the gift of homes, parks and libraries, American textile industries are today developing welfare work.



SIMILAR LUNCH ROOMS ARE TO BE INSTALLED AT OTHER MILLS OF AMERICAN WOOLEN COMPANY

Amoskeag Helps Build Homes

One of the first great corporations to realize the value of bettering working and living conditions of its employes is the Amoskeag Manufacturing Co. of Manchester, N. H. From the time a man or a woman enters the attractive employment office building maintained by the company, he is made to feel that he is a "fellow worker" rather than an employe. He works in mills with a maximum of light and ventilation. He is extended privileges for bettering the condition of himself and his family which are almost boundless. Pride and loyalty are developed to a high degree in him and he becomes an efficient part of the great working force.

When he leaves the mill gates at night after the day's work is over, he is not obliged to seek amusement or recreation at the expense of the city or to his own moral and physical detriment. If he wants wholesome entertainment or recreation, he finds hundreds of his fellow workers similarly inclined and the field is boundless.

The Amoskeag company some years ago bought a great tract of splendidly located land within easy walking distance of its mills. A large tract of land was ideally situated as a public park and this was presented to the City of Manchester. Rimmon Park contains 40 acres of land open to the entire population of Manchester.

The balance of the land was used by the company for its employes. It was laid out in wide, well-kept streets and surveyed into house lots with 50-foot frontage and 100-foot depths. To any employe of the mill of five year's standing, this offer was made: the company agreed to sell a lot of land to any employe, with the restriction that houses of not more than two tenements each be erected thereon. The company agreed to accept a first and second mortgage, each for one-half the purchase price of the land. If a house was built within a year from date of the deed, the company allowed the mortgages to remain without interest so long as the purchaser remained in the employ of the company. At the end of five years, if the mortgagor remained in the house and continued in the company's employ, the second mortgage was surrendered to him upon payment of one dollar. At the end of ten years, if the same conditions prevailed, the first mortgage was surrendered to him upon payment of one dollar. In case of the death of the employe, the heirs succeeded to his rights and, upon consent

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Selling Necessities at Cost to the Workers

Advantages and Disadvantages of the Company or Co-operative Store

By *Harry N. Kimball,* North Adams, Mass.

THE other day a paper noted that the employes of a large smelting concern in Kansas had walked out, demanding either higher wages or cheaper groceries. After a conference the company agreed to buy and sell groceries at cost to the employes and the latter went back to work confident that they would save in the company store the fifty cents a day increase in wages which they demanded.

This news item is indicative of a most significant development in betterment work. In industry stores, either co-operatively managed by the employes or carried on by the company, and selling the necessities of life at a low cost compared with generally prevailing prices are today quite common. The belief prevails that this direct attack on the high cost of living will make employes more contented with the wages which they are receiving.

This movement is an attack on the tremendous cost of distribution, which is one of the weakest links in our economic chain. The production cost of articles is doubled, tripled, quadrupled even by the time it reaches the consumer. While the wholesale merchant and salesman are necessary in our industrial system, as now organized, too many of them not only directly enhance the cost of goods but also indirectly increase the cost, because men are kept at the distributing end who under a more effective system might be released for really productive work.

New Form of Co-operation

Therefore this attempt on the part of manufacturing concerns to lessen for their own employes the distributing cost of goods deserves careful scrutiny, because it tends in several ways to change present methods of retailing. These modern co-operative and company stores have nothing in common with the company stores of the olden days. Indeed, these stores have almost entirely disappeared from industry. They usually charged high prices and pressure was often used to compel employes to trade at them. The deduction of the cost of the purchases from the pay envelope was often a cause of dissatisfaction, and the quality of the goods sold in these stores was by no means always first class. These old company stores were certainly of no benefit in creating good will among the employes.

The present idea of the company store started when employers began to sell to their workers the products of their own factories. At first usually only damaged goods were sold and the purchase of these by the employes provided an easy outlet for this class of goods. From this it was a natural step to give the workers the opportunity of purchasing first quality goods. Indeed, it seems very proper that workers should be able to buy the goods they themselves have made at the cost of production. They made them and the goods are at hand. It is not apparent why they should pay the heavy costs of advertising, selling and distribution. For years it has been the custom to allow railroad employes and in many instances their immediate families to ride without cost on the railroad by which they are employed. It is a privilege which has gone with the job; and the purchase by the workers of the goods which they themselves have produced is a somewhat analogous privilege which has become very common among manufacturing concerns. The Hood Rubber Company of Massachusetts has thus specialized in the products of its own factory and the demand of the employes for the various kinds of footwear has so increased that a sales force of nine people beside two cashiers is continually kept busy. The Goodrich Rubber Company also has a large store where all the various rubber goods made by them are on sale. Wilson & Company, packers, have recently opened a store at the New York plant, where all the products handled by the company are sold at bottom prices. In this store sirloin steak is selling at 35 cents a pound and Certified ham at 34 cents.

Development of Plan

From this selling of one's own products the step is short to a more widely diversified stock. Usually this enlargement begins by picking up some bargain which can be offered at a very low price. Thus the A. E. Staley Company, Ill., which for a number of years has been selling kindling and buying coal for its employes, deciding to establish a grocery store, inaugurated its opening by selling a carload of 800 bushels of Michigan white potatoes for $1.80 a bushel. Another store announces that by a fortunate purchase it has 800 yards of the very best sheeting, all shrunk and perfect, worth fifty cents a yard, which it can sell for thirty-three. At the Amoskeag Mills in New Hampshire the Amoskeag Textile Club purchased a carload of bacon which was offered to the employes at 30 cents a pound, and the sale was advertised in the plant paper.

With the constant increase in the cost of living groceries and meats are naturally the principal stock of these stores, but there seems to be no limit to the extension of the business. The co-operative store of the Packard Motor Company has opened a tailoring department and reports that the business has passed all expectations. A fine line of samples is kept and prices for the quality of the goods are very low. The testimony seems to be unanimous that these stores are filling a real need and are appreciated by the employes.

These stores are of two kinds, which may be designated as the Co-operative store and the Company store.

The Co-operative Store

Almost all the co-operative stores are organized on the Rochdale plan. At the Shelton Looms in Connecticut, where industrial democracy is in force, the House and Senate have approved Senate bill S-39 providing such a store. The control of the store and stock will be entirely in the hands of the stockholders. In order to finance the store every member of the co-operative association must subscribe for at least one share of stock at the par value of $10. The stock will bear interest at the rate of 6 per cent. Each member will be entitled to one vote at all meetings of the association, and also to share in the profits in proportion to his purchases made at the store. The New Departure Co., also of Connecticut, is starting a co-operative store organized along similar lines. This store opens with more than 1,200 customers, and prices will be based upon the actual cost of the goods plus the running expenses. The co-operative store of the Packard Motor Co. is doing a business of more than $20,000 a month.

Difficulties Experienced

However, as is well known, co-operative enterprises in this country have not been nearly as successful as they have been in England and Belgium. The time and work involved in their care, the skill in buying and selling which is demanded have not been available without cost. Persons for a while have been willing to give of their time and strength, but as one and another have dropped out from active interest, the burden of the work has fallen on a very few, and they at length in disgust have quit—and the co-operative experiment has ended. If an experienced manager is employed this adds to the expense and the profits have often not seemed enough to make the effort worth while. Moreover, the independent nature of the American workman makes it difficult to maintain the loyalty necessary to success. He will buy where it is easiest, he will purchase where he believes he is getting a bargain, he will go often to stores where goods are delivered, or where they can be charged, and will patronize the co-operative store only when he feels it is for his interest to do so. The Neponset Stores, Inc., of Bird & Co., in Massachusetts, in its report for 1918, says the year was not a successful one as regards the financial condition of the store. No dividends could be paid on the sale checks given out during the last six months of the year, as no profits were earned during that period. The president of the store adds, "The store belongs to the stockholders and success depends on your loyal support." Probably some time co-operative methods will be as successful in this country as they have been across the water, but the history of co-operative merchandizing shows that with rare exceptions that day has not yet arrived.

The Company Store

Outstripping the co-operative store in popularity is the store financed and managed by the company. Sometimes the actual running expenses of the store are added to the cost of the goods, but more often these expenses are assumed by the company and charged to betterment work. All goods are then offered to the employes at actual cost. It sounds very attractive and beneficent to be able to announce, "we are selling these goods to you at exactly the price we paid for them." Such a statement seems to forbid any concealed profits accruing to the company.

The running expenses of these company stores are usually less than they would be for individuals organized into a co-operative group. Often some unoccupied portion of the plant can be utilized for store space, light and heat can be obtained for a minimum of cost, assistance may be given in the clerical work, and the broad purchasing power and financial strength of the company are available. Some time ago *System* printed a table showing the operating cost of retail grocery stores. A grocery doing a business of $50,000 annually would pay 3.3 per cent. of its income for rent, 7 per cent. for advertising, 5 per cent. for light and heat, .3 per cent. for bad debts and 1.9 per cent. for delivery. In the average company store these items are almost negligible, and salaries and general expenses which in the table amount to 8.1 per cent. and 3.9 per cent., are apt to be lower. In all these stores goods are sold for cash only. There is little bookkeeping and no bad debts. A few of these stores deliver goods on certain days. This is the custom at the Hood Rubber Co., but the store of the Packard Motor Co. has recently discontinued its delivery system, due to the additional cost, and also because it has been used by comparatively few of the employes.

A common method of conducting these stores is to take orders only in the morning and at the noon hour. Then the orders are put up by the store clerks during the working hours of the day and are ready for the employes to call for on their way home. In some factories order boxes are placed in the different rooms and orders can be placed in them. These orders are collected twice a day by the store messenger and are ready for delivery at night.

While the great majority of these company stores are of recent origin, yet they seem to be successful and appreciated by the employes. The report of the American Optical Co., of Massachusetts, is typical. It declares that the store is rapidly being worn out by the increasing throngs of customers and enthuses over the fact that all goods are sold without profit. The only criticism of these stores which is at all common is that often the variety of the products carried is not so large as in other grocery stores, and that because there is no delivery of purchases it is difficult to buy articles in quantity.

The Discount Plan

Another plan for lowering the cost of necessities has been tried at the Arnold Print Works in Massachusetts. It did not seem wise to establish a store, but arrangements were made with one of the leading grocery stores of the city for all employes to obtain a discount of 10 per cent. on all cash purchases. Slips are given when the purchases are made, and at the end of each month on presentation of the slips a rebate of 10 per cent. is paid. Goods purchased under this plan are not delivered free, but a nominal charge of eight cents is made for each delivery, irrespective of its size. This is estimated to be the actual cost of the delivery.

Advantages of Both Types

Similar arrangements are pending with one of the shoe stores of the city, and the idea is capable of wide extension. The company avoids the difficulties and responsibilities of entering the retail business, the employe receives a discount which is considerable, and the local merchant obtains the advantages of a new group of customers which enlarges his business and enables him to turn over his stock oftener. The antagonism of the local merchants is also avoided, and this has been very marked in some places where company stores have been started.

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A Plan to Reduce Employes' Cost of Living

Cutting Down the Expense of Family Supplies

By *Emerson P. Harris*

Mr. Harris, a student of this subject, is author of the book, "Co-operation, the Hope of the Consumer," but here suggests a plan other than co-operation to reduce living costs.

THERE have been numerous efforts on the part of large employers of labor to reduce the cost of the supplies which their employes have to buy. This movement has gained much impetus during the last few years of rising prices. Up to this time, however, but few efforts to conduct stores in the interest of employes can be said to have been successful, whether the stores have been conducted by the employers or by their employes. I wish to discuss, as far as possible in a single article, (1) how much might be saved on the purchases made by employes, (2) where the savings must come from, (3) why most efforts thus far to make such savings have failed, and (4) to propose a plan which seems to hold out much promise.

On the family supplies which the employe buys of local dealers—foods, clothing and miscellaneous goods—the wholesaler and retailer together get an average profit of around 35 per cent. If we add to this a gross profit which the manufacturer charges on proprietary nationally-advertised goods, there may be a total of 40 per cent. in these three items. On groceries the retail and wholesale profits are much less. The Bureau of Business Research of Harvard University finds that about 11 per cent. gross profit on wholesaling and 17 per cent. on retailing are common figures, the 11 per cent. being figured on wholesale prices. Probably the gross profit on groceries which goes to the wholesaler and retailer will average around 30 per cent. on retail prices. But the same authority finds that different wholesalers get all the way from 8.06 per cent. gross to 14.9 per cent., and different retailers get from 10.5 to 26.04 per cent. gross profit. So it would appear that a consumer might pay as low as 18 per cent. for both wholesaling and retailing of groceries, or he might pay as high as 41 per cent.

At first thought it would seem that much of this average 40 per cent. could be saved for the employe and that he could at least be insured against paying more than double the retail profits in one store that are charged in another. This superficial view has led many employers into starting stores for their help and numerous groups of employes to start co-operative stores. The result of most of these efforts has been disappointment and loss of money. The mistake has been due to a lack of sufficient inquiry as to what became of the amount paid in gross profit on purchases. It has been assumed that simply to take over the storekeeping would result in sure saving. The important fact which has been overlooked is that gross profits which wholesalers and retailers charge, are mostly paid out in expenses. The Harvard Bureau finds that grocery wholesalers commonly make a net profit of only 1.75 per cent. and retailers 2.3 per cent.

Retailing Units Too Small

Therefore, when a group of employes start out to run a retail store, if they do so under same conditions as to rent, help, etc., as the ordinary store, they will have only 2⅓ per cent. to turn back to their members, even if they are so fortunate as to secure a manager who is efficient and economical. The chances are decidedly against finding a manager who will, without experienced supervision, conduct the business economically. Thus the small margin of net profit disappears very quickly and losses begin. About the same can be said of the store run by the company. Quite likely the employer may put the store into a room where no rent is charged, but here is a saving of only 1.1 per cent. The company store is apt to be called a "warehouse" and the idea entertained that it can be run for little. But there is about so much work, expense and loss involved in buying in large quantities and serving in small quantities, so that the business soon comes to assume all the complications of an ordinary store plus probably the fact that the management is untrained.

The truth is that the high cost of retailing is due to the fact that the business is done in units too small to make economy possible, and by a jack-of-all-trades who has no idea of efficiency. The small volume is brought about by excessive number of stores, the expenses of all of which must be borne by consumers and are reflected in prices. And the co-operative or company-store is subject to the same conditions.

Competition between stores does not protect the consumer by insuring economy and low prices, but permits several times as many stores as are necessary to perform the local distributive service. Whatever influence competition does exercise to help the consumer would be equally effective with far fewer stores. The excessive expense caused by these superfluous stores is net loss to the consumer.

The efficient conduct of a retail store requires a good man of thorough technical training. Thousands of articles must be bought not upon brand, but upon the intrinsic qualities of the article itself. If good judgment in buying be not exercised, the consumer must suffer and may lose more than all he pays in profits. So the local dealer doing perhaps $25,000 to $50,000 gross annual business is called upon to exercise the kind of skill, judgment and foresight which in large establishments earn for the buyer of a single line more than the whole gross annual profits of the small dealer. Thus efficiency and economy are out of the question in the stores from which employes usually buy.

Comparison Difficult

Another phase of the subject is found in the fact of the inability of consumers to judge the prices of a thousand articles so as to compare two or more stores. So it comes to pass that when a company keeps a store and sells perhaps ten or fifteen per cent. cheaper than most prices on the street, the employes, after the novelty has worn off, wander away and buy their goods elsewhere, leaving the company with expenses unmet and goods to grow stale. The Barbour Flax Spinning Company of Paterson (N. J.) has gone through this common experience and lost some thousands of dollars, as has also a big concern at Perth Amboy, N. J.

The Employers' Association at Paterson went into the promotion of mill stores in 1917 quite extensively. The executive secretary of the association, A. L. Wyman, sought out sources for farm products and after various negotiations gave the individual mills the results of his inquiries in price lists issued at intervals. The mills, fourteen in all, did their own buying, however. The movement lasted only a few months. Among the causes of its discontinuance was the opposition of local retailers brought to bear in some cases by the refusal of certain jobbers to sell the mill stores. Most of the mills have discontinued their efforts. The Benj. Eastwood Company, silk machinery, Paterson, is still running a store which seems to move very smoothly. The Eastwood people deduct the store bills from wages on pay day. The expense of labor incurred is charged against the goods. This amounts, at present, to 6 per cent.

The question is frequently asked why Rochdale Co-operation which is so successful in Great Britain and other European countries is not made to succeed in this country. To answer that question fully would require more space than is here available, but three things which stand in its way may here be mentioned. First, is the fact that net profits on staples are so small, as above mentioned, that these soon disappear through inefficiency and losses take their place. Second, the big chain stores, by doing their own wholesaling, have an advantage of at least five per cent. which is very difficult to overcome. Third, Americans are individualists and not co-operators. They do not understand the necessity of standing loyally by the store. These obstacles are perhaps in the way of being remedied at certain centres of activity such as Pittsburgh, Springfield, Ill., Chicago and Seattle. But co-operation is not available for isolated groups.

A Plan

My belief is that, say, half the expense of distribution or 15 to 20 per cent. could be saved to large groups of employes where their trade can be concentrated in a single store or few enough stores to make large scale operation possible, and further, if the business can be kept in the hands of technically trained, experienced and responsible dealers of such size as to do their own wholesaling. This I would bring about by the same means which large industrial establishments employ in buying their own supplies, namely, buying at primary markets in sufficient quantities to get bottom quotations. In other words, any saving in expense on the present usually crude methods of distribution must be looked for, not in taking over net profit, but through the adoption of thoroughly efficient and economical methods. There is not enough net profit both to wholesaler and retailer to offset the probable loss due to inefficiency of inexperienced or unskillful management.

I would treat the selling of family supplies to a large group of employes as a monopoly. That is, I would not rely at all upon competition between stores, but would let the whole contract of furnishing the goods for a certain period to the eligible dealer who would perform the service for *the lowest gross profit* for both wholesaling and retailing—the party who would charge the lowest percentage of difference between cost in primary markets and the retail price. To illustrate: If a responsible and acceptable bidder would offer to bring the goods from the same source of which the largest wholesalers buy at as favorable prices and serve them at the counter of the store at, say, 18 per cent. of the retail price, then an audit should disclose that goods costing $82 at source should not be sold for more than $100.

Employes' Endorsement Needed

A satisfactory bid could be obtained only on condition that the bidder were assured a certain minimum of trade which he would not need to fight for as he would under usual competitive conditions. How this minimum of trade could be assured would depend upon local conditions. It would be very simple in the case of large mills which owned and therefore controlled all convenient sites for stores. I hasten to say that it would be of the utmost importance to give employes absolute assurance that in making the arrangements—first, by cutting out competition, economical conditions were brought about so that the distributive service could be performed at the lowest possible cost; and, secondly, that free and adequate competition was availed of in inviting bids and awarding contract. Further, the monthly audit to make sure that the stipulated gross profit was not being exceeded should be made plain and open to all consumers.

In fact, such an arrangement should, for best results, be carried out by joint action of employer and employe. The more the employes have to do with it the better, even to the extent of managing the whole thing.

In cases where a single mill is not large enough to make an advantageous arrangement possible, it might be feasible for two or more mills to join in the undertaking.

One thing which would tend to retain the trade of employes would be to permit them to trade against accruing wages, deducting the amount on pay day. The Eastwood Company, as already mentioned, does this and also discourages the paying of cash at the store since it regards the other arrangement as the more simple. It is implied that a dealer to be eligible for this kind of a contract must do a large enough business to be actually or practically his own wholesaler. This trade may, of course, be in stores other than the one under discussion. It is probable that

(*Continued on page 337*)

Varied Experiences In Operating a Mill Store

Optimistic and Pessimistic Opinions From Men Who Have Tried It

By *A Member of the Staff*

ONE phase of the problem of industrial relations which has received special consideration by textile manufacturers during the year is that of the maintenance of mill stores. The latter months of the year witnessed considerable publicity given to this question owing to the threatened establishment of a great department store by one of the largest woolen manufacturers. It is a recognized fact that a certain class of retailers in most of the mill centers advance their prices on foodstuffs and other necessities in accordance with increases which workers in that section receive in wages. It is to counteract this evil that manufacturers consider the mill store plan.

There are, however, difficulties in the way. In an article in this issue E. P. Harris draws attention to certain of these obstacles and outlines a broader plan with a view to eliminating them.

In order to get actual facts from the experience of men who have tried the establishment of mill stores, a representative of this publication visited a few such plants in the Paterson and Passaic district. The opinions received during his investigation were not by any means unanimously in favor of the mill store. As a matter of fact, the men he interviewed were about 50-50 for the plan. All of the men, however, were most willing to talk and their experiences are interesting ones. A summary of these interviews is given below.

Successful Store for Over Two Years

Benjamin Eastwood Co. Saves Employes Between 10 and 12½ Per Cent.

ONE of the enthusiastic supporters of the general proposition of supplying foodstuffs and other commodities to employes at cost is the Benjamin Eastwood Company, Paterson, N. J., manufacturer of silk looms and special machinery. F. C. Phalen of that company has had this matter in charge and reports success so far as his firm is concerned.

The Eastwood Company started their mill store two years ago last September. At first they merely handled fruit and vegetables, selling at cost to the workers. Their plan gradually developed until they introduced lines of groceries. They finally had to get a store-keeper to take charge of the sales, and were fortunate in the selection of this man so that the business developed with him under the supervision of Mr. Phalen.

One of the things which Mr. Phalen believes is the basis of his company's success is the fact that this storekeeper was thoroughly interested in the work. Another reason given by him is the fact that there is no handling of cash. The entire proposition is a credit one. Whenever a sale is made a regular order slip is made out in duplicate, a copy going to the purchaser and the original being filed alphabetically. At the end of the two weeks' period at which the employes are paid, the total amount bought by each employe is deducted from his pay envelope. Enclosed in this envelope is a duplicate slip showing the amount he purchased during the two weeks' period. This he can easily check up with the duplicate slips which he has received. The entire system is a simple one and does not require employment of a bookkeeper for this purpose. Mr. Phalen handles this end of the game, keeping a produce account consisting of the amount paid out for the stock and the amounts received from the employes. This account is turned over periodically to the mill-accounting department.

Lines Handled

A fairly complete line of the important commodities required for everyday use is carried in this store. This includes package goods and materials in bulk. For example, they sell a very good grade of trade-marked coffee, but at the same time handle this material loose. Other things handled in bulk are white beans, peas and lima beans.

An important feature is the sale of hams and bacon once a week. Orders for these meats are accepted up to Wednesday for delivery on Friday. Employes are saved at least 4c a pound on these meats. Mr. Phalen showed his interviewer some bacon which he was selling on that day at 38c a pound and which was bringing from 45c to 50c in the local shops.

In addition there were stocks of working shirts, overalls, socks and suspenders. There was also a line of tobacco, cigarettes, fruit and crackers.

Accomplishments

The extent of the success of this store may be imagined from the following figures: Out of approximately 350 employes there are 200 regular customers. In addition there are many others who came in for special sales. The business done amounted to an average of $1,000 every two weeks covering a period of six months. This is still more significant when it is noted that this period included a strike during which, of course, buying stopped.

Among the savings accomplished for the employes, coffee was sold at 22c when the wholesale price was 30c. The reason for this was that Mr. Phalen had a "hunch" that this commodity was going up and had purchased in preparation. During the first sugar shortage he always had it available for the workers, although their position in the second shortage was not so favorable. Sacks of potatoes were sold at $5.00 when the local market price was $7.00. Bags containing 10 pounds of macaroni in the bulk were sold at 11c per pound, whereas retail package goods were then selling in town at 14c for a package containing 12 ounces.

Mr. Phalen estimates that he sells his commodities at an average margin of 10 to 12½ per cent. under chain store prices. He purchases butter in 30-pound cartons and eggs in 30-dozen crates.

Added to the selling price is the overhead in order that the store may be self-supporting. This overhead averages 4 to 6 per cent on the sales.

The company does not attempt to sell things on which they cannot make a significant reduction as compared with chain store prices. For example, flour was selling at $16.00 per barrel at a time when some of the local shops had purchased it earlier at $14.50 per barrel. In this case Mr. Phalen merely did not sell flour. There is also a brand of soup on which he cannot undersell the Paterson shops and which accordingly he does not carry.

Deliveries on large orders are made free of charge. The store will sell a case of anything. As an example of this method of merchandising, 30 cases of canned milk were sold within six weeks.

The average stock carried amounts to $2,000. One of the serious difficulties to be faced is the fact that there is not enough room for storage. The turnover amounted to 9½ in seven months.

Attitude of Workers

When asked as to the attitude of the worker towards this enterprise Mr. Phalen stated he had never been able to figure out whether the employes really like to have their pay envelopes deleted to the extent of their store purchases, despite the very evident savings which this incurred. He is rather inclined to believe that the women of the families especially disliked this decreased pay. Nevertheless, the store continues to be popular, and the company has no intention of discontinuing it. In fact, it is likely that the scope of the enterprise will be broadened.

The success of this particular venture is no doubt based largely on the ability of Mr. Phalen to gauge prices and to buy from the most promising sources. It is also due partly to the fact that he picked a really capable man for the direct management of the store.

Sells Specialized Commodities at Cost

Textile Mill Handles Only Articles on Which Saving Can Be Realized

AN example of a store which has run successfully for three years is found in a large textile mill in Passaic, N. J. The management of this particular plant however does not feel that this proposition has been made extensive enough to permit publication of their experience and was accordingly unwilling that their name be used in connection with this report. They especially dislike any apparent exploiting of the workers in the form of publicity as to welfare work.

This company buys only those commodities which it can sell to the worker at a considerable saving. For example flour is sold at a good margin under local prices. The mill sells a sack at $1.80 whereas Passaic shops are selling the same thing at $2.20. The company has a good connection with a large flour firm and at one time had purchased a shipment which this firm was willing to buy back soon after the sale as the price had gone up in the meantime. The firm also sells 6 pairs of socks at 95 cents by buying them direct from the hosiery mill in the south. Furthermore they sell good creamery butter well under the market quotation. When a commodity is exhausted they do not purchase another shipment until they can do so at an advantageous saving.

Enthusiastic Support

The official interviewed stated that the employes were enthusiastic in their support of the plan, continually offering suggestions as to broadening of the scope. He emphasized the fact, however, that it is necessary to get a good man to run the store. He believes it is cheaper to pay a man $25.00 or $30.00 a week than continually to interrupt one of their regular workers in his employment. He also pointed out that it may not be possible to break exactly even on the store. His company does not figure in overhead as such but adds a slight amount to the cost of the commodities in order partly to cover the expenses. For example coffee is sold at ½c per pound above the cost and as they sell approximately 2,000 pounds during the week they thus cut $10.00 off the overhead. They figure that it is necessary to do a gross business of about $150 a day in order to nearly cover expenses and that furthermore efficient management depends on quick turn-over. Even though it may cost a little however, the company feels that it is an excellent investment.

Considers Mill Store Ineffective

Manufacturer Believes It Least Efficient of Industrial Plans

A PESSIMISTIC opinion on the mill store proposition was obtained from D. L. Malcolm of the Barbour Flax Spinning Company, Paterson, N. J. This company ran one for about two years.

In Mr. Malcolm's opinion this was just one of the things which manufacturers did during the days of the war to get employes. It was in short, part of their salesmanship methods,

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Economic Education and Square Deal for Workers

Efforts of Industrial Relations Service to Restore Industrial Harmony

WHILE leaders of industry are cudgeling their brains and wondering what is ultimately to result from the fever of social unrest and labor disturbance that is sweeping the country, it is refreshing to obtain the views of a man who looks forward with equanimity and optimism to the restoration of harmony and sanity to industry.

How this will be accomplished should be of interest to every industrial executive, business man and thinking person in the country, representing as it does the views of a specialist in the solution of labor problems in their relation to industry—one who has been successful in reorganizing whole industries to a comprehensive working plan where employers and workmen could meet amicably upon a common ground of understanding.

As general manager of Industrial Relations Service, Ltd., an organization specializing in solving the problems of industry, George E. Holmes is in daily contact with the multiplied difficulties of hundreds of large corporations employing many thousands of workers.

Summed up briefly, it is Mr. Holmes' opinion that the only true and lasting solution to labor's difficulties rests in the economic education of the worker and a practical application of "The Square Deal Policy" between employer and employe,—exemplified, as Mr. Holmes points out, not in sharing the profits of industry with the workers; not in constantly increased wages in which employers bend to the will of arbitrary demands of employes; nor by the arbitrary declaration of bonuses by employers as incentive to greater effort, but by a constructive policy whereby the worker is recognized as a human entity, and educated to his individual place in the big scheme of life. This means, in short, a policy in which the worker is made to realize his responsibility to himself, his fellow workmen and his employer,—through assuming his share of responsibility for indolence, indifference, restriction of output and poor workmanship—made to know that he is worthy of his hire, that he must first earn it before he can enjoy the compensation of his labors. And lastly, he is given an opportunity for self-expression wherein he is permitted freedom in the ways in which his energy should be applied.

Economic Education

"The basis from which such a policy must be approached," says Mr. Holmes, "is first through the economic education of the workers, wherein the employer puts all his cards on the table, explains his own problems and difficulties and the conditions he is compelled to meet and overcome. The workers are then led to realize their part in the structure in relation to the economic whole. It must be an open-and-above-board proposition or else the worker will continue to reason, as he has in the past, that his employers are his natural opponents and the cards are being stacked against him. Once shown the fallacy of this reasoning, it is my experience that the worker is quick to respond and assume his own full share of responsibility.

"A case that illustrates my point," Mr. Holmes said, "occurred in a large textile mill wherein the Industrial Relations Service had been asked to install the 'Square Deal Policy.' The management had been having constant difficulties with its workers. The I. W. W. were strongly entrenched in the town and this destructive element kept the workers in a constant state of turmoil

GEORGE E. HOLMES

in which strikes were of frequent occurrence.

"The management of the plant in question, after repeated efforts at arriving at some sort of solution for themselves, turned to us as a last resort. A strike was even then imminent. It was a difficult situation to handle.

"We went into the plant, however, and at a general meeting attended by every one of the 1,500 workers in the plant, as well as the executive heads, we presented the 'Square Deal' plan. We told them just exactly what it meant, how it would function and what results to expect, but made no promises. We put it distinctly up to the workers—75 per cent. of whom were females—that if they themselves agreed to it, they must make it valuable. They were shown that they must conform absolutely to the principles set forth in the 'Square Deal Policy' if they were to achieve anything for themselves or for the management. We would act only as an open book in which they could read of the accomplishments of other workers and we would have no deciding voice in what they proposed doing. They were shown, too, their responsibility not only to themselves but to each other and the relation in which they stood to the management. It was emphasized that all their interests were inseparably interwoven and that their greatest good must eventually come through co-operation with every other agency within the organization.

"The plan was accepted by the workers and the legislative body formed. Five days after the presentation had been made, however, and before the workers' committees had been appointed, one of the departments of the plant, composed wholly of foreigners, only one of whom could speak or understand English, made an arbitrary demand upon the management which was impossible of fulfillment. Their alternative was that unless the demands were met at once, a strike would be called. They struck without giving the other workers an opportunity to hear their grievance, 45 employes out of the 1,500.

Appealed to Workers

"Although the plan had been accepted by the workers, it had not yet been put in operation, and could hardly be fully understood. We had confidence, however, that if the situation was explained to the rest of the employes, and their sense of fairness appealed to, the difficulty would be overcome. A meeting of the legislature, the workers' body, was called, and the story told them in all its particulars. We told them that it was now their opportunity to show whether they believed in the plan or not, and that the management left the matter entirely in their hands for adjustment.

"The unfairness of these wilful few who to satisfy their own selfish interests were willing to sacrifice the well-being of their fellow workers roused the meeting to indignation. With a clear understanding of the points involved, discussion was begun. One of the workers arose and demanded that every one of the employes in the department making the demands be summarily discharged. This was drastic action, however, and another representative worker, realizing this, addressed the meeting and recommended patience and urged that inasmuch as those making the demands could not speak English and were, therefore, incapable of understanding what the "Square Deal Policy" meant, as he believed, a committee should be appointed who could speak their language, to go to the homes of the recalcitrant workers and explain just what was being aimed at. The result was that all were at work the following morning, with the exception of the agitator, whom they had refused to reinstate.

"Today that plant is operating for the first time in months in complete harmony. Labor troubles are a thing of the past. The workers are happy and contented, the I. W. W. has been driven out, and everyone is earning more than ever before. The loyalty of the workers has resulted in reduced operating and production costs. Labor turnover, which under the old system was appalling, has been practically eliminated. The earnings of the workers are not regulated by any arbitrary standards set up by themselves or their employers, but are being constantly increased by actual cash dividends earned by themselves on the savings resulting from their co-operation. They split 50-50 with the management on all reductions they effect in the cost of production.

"To illustrate another instance, there was a large shoe manufacturing plant in New England, employing several thousand workers, the management of which placed their problems before us not many months ago. They, too, had been meeting constant labor difficulties. It seemed impossible to satisfy the demands of the workers. Their labor turnover had been a constant source of worriment; operating and production costs were prohibitive; production was curtailed; the product was suffering through the carelessness of workers who had no interest in what they were doing. It was imperative that some action be taken to reach an adjustment.

"After surveying the situation we were positive that the chief disturbing element in the whole organization was a big, active, quick-witted and intelligent Irishman. All trouble in the plant seemed to emanate from him. We knew that if anything lasting was to be accomplished in that plant he would have to be reckoned with. He was the energy spot in the whole organization.

"It was a question of psychology more than anything else. He was actuated by one of two motives. Either he was a common disturber, or he was thinking wrong, striving for self-expression and chafing under the inability to give his individuality sufficient elbow room. We thought, however, that we could rely upon his sense of fairness and decided to make use of his energy if possible, by directing it into the proper channels.

"He was elected to the Legislature to represent his department.

"The management realized he was a favorite with the other employes and felt confident he would receive their support for the presidency of this body. This was a cause of considerable alarm on their part as they were fearful that he would misuse the power that would be thus placed in his hands.

"We reassured them, however, on this point, and explained our objective.

"He received the nomination and was duly elected.

Fighting the Company's Fight

"I would like to give you his own words on his acceptance of the position: 'When the company let me get the election as representative from my department, to this body, I thought they were 'kidding me,' but when they didn't try to prevent my election as president of it, I knew they couldn't be. They must believe in a "Square Deal" if they will put all this power in my hands, and I want to say to you fellow workers, that anyone who wants to give me a "Square Deal" is going to get one in return, if I have anything to do with it. I have in my hand here (displaying a slip of paper), a demand for a 25 per cent. increase in my department (he slowly tore the slip of paper to bits) and I am willing to wait until this plan gets going so its committee can have a chance to investigate our rate before putting it in.

"This man is now fighting the company's fight because he is 'sold' to the fact that they want to do all they can to co-operate with their employes if the employes will but meet them half way.

"The plant in question is now operating at a hundred per cent. capacity, and so successful has the plan resulted

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The Employment System in the Textile Industry

Expert Discussion of Uneconomic Elements—Explanation of Contracting Operating Unit Plan

By *Preble Tucker**

THE more we study the history of industrial development the greater becomes the conviction that the present unsatisfactory labor conditions are primarily due to the employment system itself. In other words, the system is, and always has been, radically unscientific and therefore essentially uneconomic; especially when applied to large groups of industrial employes. In no case is this fact more strikingly demonstrated than in the history of the textile industry.

Practically speaking, the employment system in the textile industries of this country comes to us from England. Lecky, in his exhaustive work entitled "England in the XVIIIth Century," traces the origin and growth of this system.

He shows that during the first half of the eighteenth century all cotton yarn was spun in single threads by the hand in countless farmhouses over England; that the invention of the fly-shuttle in 1738 by Kay about doubled the rapidity of the process of weaving; that in 1764 the Hargreaves spinning jenny enabled a single spinner to operate simultaneously eight spindles and thus spin at once more than a hundred threads of cotton; that the subsequent inventions of Arkwright finally established the cotton spinning machine as a great instrument in manufacture.

Development of Factory System

The invention of the power loom did for weaving what the spinning jenny did for spinning, and thenceforth cotton cloth practically ceased to be a handmade fabric.

The natural consequence of this was to change the whole status of those employed in the textile industry. The factory system took the place of domestic manufacturing.

Lecky goes on to show that, co-incidently with this change, the status of the agricultural laborer also changed. The consolidation of small farms brought about the elimination of the small peasant farmers and drove many of them to the factory.

The worker no longer worked by himself in his own home, but became part of a large group working outside their homes and constantly shifting from place to place in search of better wages and conditions of work. Of course this radical change did not take place without numerous disturbances and riots. Labor naturally believed that the substitution of labor saving machinery for hand work spelled loss of employment, and turned its wrath on the inventors who were responsible for the substitution.

Lecky states that Kay, the inventor of the flying shuttle, was so persecuted that he was obliged to leave England; Hargreave's house was broken open by the mob; his machines were destroyed and he was obliged to flee for his life. A large mill built by Arkwright was destroyed by a mob.

Inventions Increased Jobs

Yet there is no doubt that their inventions ultimately effected a tremendous increase in the employment of cotton workers; it is estimated that, whereas at the beginning of the reign of George III the number of those employed in England in the cotton manufacture amounted to above 40,000, it had increased in 1785 to 80,000, and by 1831 had reached 833,000; since then, of course, these figures have expanded enormously.

It must be remembered that the 40,000 workers in cotton manufacture at the beginning of the reign of George III consisted of hand spinners and hand loom weavers scattered over the length and breadth of England, working in their own homes, which were farm houses and village cottages. These workers were paid by the yard or piece, as the case might be; their hours and conditions of labor were substantially under their own control.

Changes Made by Machinery

The introduction of machinery changed all this. To quote again from Lecky: "Human progress, however, rarely means more than a surplus of advantages over evils, and the evils that accompanied the sudden growth of manufactures were very great. . . . In spite of the extraordinary rapidity with which the inventions in manufactures succeeded one another, it was some years before the factory system obtained a complete ascendancy, and each stage of its triumphant march was marked by the ruin of industrious men. Not only the manufactures pursued in the farmhouse, but also those upon a somewhat larger scale pursued in the towns, were destroyed. . . . The woolen manufacture in the eighteenth century was carried on by great numbers of small masters in their own houses. They usually employed about ten journeymen and apprentices, who were bound to them by long contracts, who boarded in the master's house and who worked with him and under his immediate superintendence."

As late as 1806 there were at least 3,500 of these hand loom weaving establishments in Leeds and its neighborhood alone, and they for a time maintained a desperate competition against the factories. But the latter with its large capital, its costly machinery and its subdivision of labor soon drove them out of business.

Here, then, we have the genesis of the modern system of employment in the textile industry. A species of so-called "white slavery" sprang into existence in which were all the uneconomic factors of regular slave labor, without the stability in labor power which the latter secures to the master, and without that assurance of a livelihood and protection in old age which the slave system gives to the slave worker.

Basic Defects Considered

While it is true to-day, as Lecky points out, that, under the excellent management and discipline prevailing in many factories, "a standard of comfort and well-being has been attained which is beyond all praise, and high wages combined with many opportunities for improvement and saving have raised the level of civilization in the operating class above that of the eighteenth century," nevertheless, the basic defects of the industrial employment system still remain. These defects are inherent in the system itself and can be eradicated only by a complete change in the basic principles upon which it functions.

That the remedy does not lie in Government regulation of industry is shown by the results of many attempts in that direction made by the British Government. Indeed, the Statutes of England teem with laws regulating not only the conduct of its subjects, but their dress, manners, eating and mode of life.

Early English Laws

In the eighteenth century, the law of Elizabeth determining the conditions of industry was still in force. This famous law provided that "no one could lawfully exercise any art, mystery or manual occupation without having served in it at least seven years as an apprentice; that no one should be bound as an apprentice who was not under twenty-one years, and whose parents did not possess a certain fortune; that every master who had three apprentices must keep one journeyman, and for every other apprentice above three, one other journeyman; that no one should be engaged as a servant or journeyman for less than a year; that the hours of work should be twelve in summer, and from dawn to night in winter; and finally, that wages should be assessed by the year by the justice of the peace or town magistrate, who were also directed to settle all disputes between master and apprentices."

Under James I another law was passed, extending the power of the justices and the town magistrates to determine the wages of all kinds of laborers and workmen. The woolen industry was regulated by earlier statutes in addition to the Acts of Elizabeth and James I. About the middle of the eighteenth century, however, the woolen workers complained that the justices refused to fix the rate of wages as the law required, and after some strikes and riots in 1756 an Act of Parliament was passed, ordering the justices to settle yearly the rates of wages in the woolen manufacture.

Settlements for Long Periods

The tendency of all these laws was to restrict production, and while the worker was ostensibly benefited by having his rate of pay settled for long periods, and his hours of work regulated by law, the fact was that the laws seemed to have been easily evaded by their employers, so far as wage rates and hours of work were concerned.

Of course, the introduction of the factory system produced new conditions to which these old regulations were not applicable. The practice of fixing wages by justices of the peace became practically obsolete. This brought about much friction between employer and employe, resulting in combinations of workers to raise wages, which in turn resulted in the enactment of stringent laws forbidding such combinations. Such laws were manifestly unfair to the workers, so long as the employers were at liberty to combine to depress wages.

The tendency to regulate industry by legislation reached a point where even profits were regulated by law, and economists, like Adam Smith, began to point out the economic fallacies of such legislation.

Victims of Early Theories

Smith was strongly opposed to Government interference with industry, either in the form of restriction or in the form of encouragement. Whatever one may think of Adam Smith's theories as to free trade and protection, one must admit the soundness of his arguments regarding Government regulation of production. The doctrine, so long held by the English trade unions, to the effect that restriction of labor power necessarily inures to the benefit of the worker and makes for a higher wage scale, never had the strong support from labor in this country that it had in England. Nevertheless, it has had its influence in the attitude of our labor unions towards developing the efficiency of the individual worker, and the consequent speeding up of his productive capacity.

The fact of the matter is that both employers and employes are victims of a system which has led to a false conception on both sides as to the economic principles that should govern modern industrial production.

We have seen how, in England, the employment system in textile manufacture was radically changed in the latter half of the eighteenth century by the introduction of machinery and the factory system. Even under the old apprentice and journeyman system in the wool and silk industries, there was much friction between employer and employed, and the Government was repeatedly called upon to intervene to restore harmony.

Trial of Apprentice System

The old apprentice and journeyman system had one advantage over the present system, in that both employer and employed were protected by long term contracts, which tended to stabilize the relations between the two, and prevent that great evil of modern industry—excessive labor turnover. When, however, the factory system, with its large groups of operatives, was substituted for the old system, this economic feature disappeared from industry, and the friction between employer and employe became still more acute. Until the merging of the individual employer into the corporation employer, however, this friction was held in check, more or less, by the pleasant personal relations which existed in many instances between the individual employer and his operatives.

The gradual absorption of the textile industry by corporations, made necessary by the large amounts of capital required, and the enormous increase in the number of operatives employed in a factory, destroyed even this saving feature. The counter-organizing of labor unions was the inevitable result. In

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Developments and Tendencies in Research Work

The actual initiation of textile research in this country, as well as the stimulation of definite, practical interest in the subject, are quite as direct results of the World War as is the movement to improve relations between employers and employes. Both were the fruit of efforts to speed up production of war supplies to maximum effective limits.

Complete scientific and practical knowledge of the raw materials, processes and products of any industry is just as essential to the attainment of maximum productive result as is a contented and efficient force of operatives. During the war the ablest authorities in the country on such subjects were volunteers in the Government's army of production engineers, and the opportunity thus afforded for cooperative effort with leaders of industry and labor not only resulted in the development of new and more effective manufacturing methods, and in vastly improving industrial relations, but stimulated thought and interest along the same lines among those associated with them in war work and among large numbers of manufacturers engaged upon war work.

The influence exerted upon the textile industry by the demonstration in war work of the possibilities and advantages of systematic research was more pronounced than its effect upon several of the other leading industries, because of the relatively slight attention that the subject had been given previously by textile manufacturers. The electrical, steel, paper and leather industries, for instance, had been engaged for a long period in more or less exhaustive research of an individual or cooperative character, and the war simply stimulated these efforts. To certain branches of the textile industry, however, particularly cotton manufacturers, it was a revelation of new and vitally important possibilities, and it is hardly surprising that certain cotton manufacturers who were in closest touch with these accomplishments should have been quick to undertake systematic research work in a practical manner. The organization of both The Textile Research Company and The Cotton Research Company, of Boston, can be traced directly to these war-time experiences.

The systematic research conducted by Government departments, in conjunction with manufacturers, in the development of cotton airplane and balloon fabrics, and that was reviewed in some detail in last year's Annual Review Number by E. D. Walen, formerly Chief of Textiles, U. S. Bureau of Standards, and now manager of The Textile Research Co., was in itself such a remarkable demonstration of the possibilities of research work as to convince any but the most biased unbeliever. That cotton would make an airplane cloth superior to linen was a surprise to most manufacturers and particularly to the British air service, which had clung to flax; but even more surprising to most practical textile men was the demonstrated inferiority of silk to both cotton and flax for such purposes, owing to its low fatigue factor. These are only a few of the important results of these particular researches, but it is with the effect, and not the details, that we are now concerned, and one of the most significant results is the inauguration, by the two companies mentioned, of research on a practical and permanent basis, and the efforts that are now being made by committees of the National Council of American Cotton Manufacturers, and their constituent bodies, the National and American associations of cotton manufacturers, in cooperation with the National Research Council, to organize research for the cotton industry in a thorough and systematic manner.

These committees are all working toward a well rounded plan of research work, of both a fundamental and special character, to be co-ordinated in the cotton industry through the Cotton Research Association, and with all other industrial research through the National Research Council. They recognize that an essential preliminary to effective work is the collection of available literature and experimental data, a detailed inventory of available research facilities in this country, and the development of a well-rounded program, particularly for fundamental research. It is of special importance that each of the committees has recorded its belief that individual and co-operative effort by manufacturers as distinguished from the government-subsidized plans of Great Britain and other foreign countries, is to be preferred in this democratic country, thus keeping it free from political influence, government restrictions and the domination of any large industrial group. The really important feature of cotton research work in this country is the considerable number of textile and allied companies that have already instituted such work.

It must be clearly understood by manufacturers that the only radically new feature of proposed research work is its organized and systematic character, and the dawning realization of the vital need of fundamental research on fibres and textile processes. The development of the machinery and processes of textile manufacturing, as well as those of any other industry, has been the result of research work conducted under the most difficult conditions.

Research in the Textile Industry

Need of Appreciation of Technical Problems —Benefits of Research Are Self-Evident

By *Charles Goldthwait*

THE word research has a fairly definite meaning to each individual who hears or uses it. It can be formally defined, but the definition will have little weight with one whose own particular view does not agree with it, and adds nothing to the discussion for one who does agree with it. For the time being then we will avoid anything like a dictionary definition.

Research is rated all the way from a waste of money to the salvation of a business, according to the prejudices or experiences of the parties concerned. We will attempt to show its value from definite examples of its use and appreciation, and by results already obtained, rather than from considerations of a more general nature.

Research at once suggests the application of science to industry. This has a rather "highbrow" sound, but when we turn back to the old definition, "science is organized common sense," we are brought right down to hardpan, for as far as it concerns most of us it is a function of brains and common sense more than of anything else.

No One Best Method

Effective research supposedly follows scientific methods, and probably it does, but the ordinary researcher does not stop to think much about that. He merely goes at his work in some systematic way and keeps careful records of failures as well as successes. This is the keynote to final success and apparently no method is necessarily the best.

When Edison wanted to find a material for a lamp filament he made a systematic attempt to test by actual trial every type of fiber in the world that might possibly answer his purpose. When Parsons developed his steam turbine he is said to have worked out every curve and dimension by careful mathematical analysis before making a single part. The two methods are widely separated. The latter would probably be considered the more scientific, but each inventor by following his own system arrived at a successful result.

RESEARCH BUILDING OF WESTINGHOUSE ELECTRIC AND MANUFACTURING CO. IN OUTSKIRTS OF EAST PITTSBURGH, PA.

Research in textiles has not gone far when we consider the age and size of the industry, and it cannot go far until the man who pulls the puckering string around the top of the money bag backs it up. Why should he spend his good money on laboratories and their personnel when his mill is giving the regular quarterly dividend? He has got to be shown that the mill can be reasonably, if not almost certainly, expected to yield a bigger dividend by the aid of the new institution.

Research Must Pay Profit

Striking examples of profits from research in textiles are not common. If they were the subject would not require discussion. We must therefore look to other industries for the fruits of this class of work, remembering that when science has been applied to any industry there has always been the objection that while it might be all right for the other fellow it did not apply to this particular kind of work.

Two of the most striking examples in

America are the General Electric Co. and the Eastman Kodak Co., both of which maintain very large research organizations and spend many thousands of dollars annually. Many of their most successful products have come directly from the laboratories, but in spite of their apparently profitable business their engineers, chemists and physicists are constantly at work on better methods and new products, and we can note results as they appear from time to time on the market. These people even go farther and delve into fundamental scientific problems quite far removed from any immediate prospect of financial returns. They are merely mentioned as "Ideal cases" where the research idea has been most extensively developed. We can only conclude that it must pay.

Work of Two Associations

To come nearer home to textiles we have a research enterprise that is less known but still very striking. The Laundryowners' National Association maintains a chemical engineering department which is actively engaged in the study of laundry problems, many of which are of a research nature. They are apparently not devising or trying to discover any new or startling revolutionary methods of cleaning soiled garments. Their research men began by studying the effects of our old friends of the textile industry, soda, bleach, etc., on clothing. While somebody with the General Electric may have branched off into the problem of what atoms and molecules are made of, the laundry researcher was counting the number of times that a collar could be sent to the laundry before the edge was scrubbed off of it, and trying to figure how to make it go a few times more before being overtaken by this fate.

A large corporation can indulge in a laboratory as a luxury or a toy, although we doubt if many of them do. The owners of relatively small cleaning establishments are not so fortunately situated, and it is pretty safe to assume that they are getting some quite tangible benefits from what they are putting into it. In other words, research as far as they have gone with it, must pay.

The washing of clothes is as old as the textile industry and it would be very strange when a recent study of the problems of laundering have proved of value in this old and relatively simple process, if a similar investigation into the far more complicated operations of manufacturing the fabrics themselves would not be proportionately fruitful.

The final example of a research organization, which seems to come between the foregoing and may more closely correspond with the requirements of the textile industry, is the scientific section of the Paint Manufacturers' Association of the United States. The paint man's problems have been investigated and research conducted where necessary. Instead of laundry bulletins they have reports on various phases of paint manufacturing.

This does not mean that when a manufacturer discovers some valuable method or shortcut that he necessarily makes it available to the whole trade, but rather that problems common to most factories can be attacked in a comprehensive way and the resulting data on raw materials, methods of analysis or what not made available to all in the Association who are interested. The most obvious result is standardizing and improving manufacturing practice all along the line and saving many individuals' time and worry from trying to handle troubles for which they may have neither time, facilities nor the necessary special training. This organization has been at work along these lines for a number of years, so again we must conclude that research must pay.

Any of us then can go out and see research applied to lines as widely different as electric lights and motors, cameras and printing out paper, manufacture of paint and varnish, and cleaning of everything from white collars to variegated silk shirts. He is certainly a "wise" individual who can declare without an extensive trial that research conducted on the same broad lines will not pay in textiles.

A Broad View of Research

Let us indicate a little more definitely some of the things that might be done. In the first place it does not seem necessary to limit the idea of research too closely to what might be covered by a technical definition. In general it means finding out something new. As far as the individual manufacturer is concerned it means finding out something new to him and that is what he is interested in. Whether it would be considered research by the scientific world or whether the results are absolutely new should not worry us at this stage of the game.

Footing up last month's sales on a new adding machine is not research. Trying to find out in advance the suitability of a new strain of cotton for certain counts of yarn by observing the average lengths, diameters and number of twists in the individual fibers, and noting their connection with the manufacturing properties, would be research. The application of scientific management in a textile mill might involve considerable investigation that would not be considered research and a large amount that would. As a final example, the writer started some time ago to determine the suitability of different classes of dyes for rough flax tow. This sounds like a research problem, but it has developed into what is practically laboratory routine, putting new colors as they appear on the market through a series of standard tests.

Each of the problems mentioned is finding out or developing something new. However, the first is not research, the second is, and the last two are indeterminate. For our purpose almost any real problem involving the technical side of manufacturing is research.

Status of Textile Industry

Research has of course been applied in the textile industries to a certain extent, but we must confess that most of the vast development from former primitive operations has been brought about as a gradual growth by rule of thumb methods. Mechanical and chemical processes have been handed down for many years. Progress slowly appeared here and there, due largely to crude experiments in which the various factors concerned were not well understood. This has gone along with a continual acceleration until with the present influx of technically trained men into the operating and executive departments of all classes of mills, as well as into manufacturing of machinery and supplies, still more rapid progress is to be expected; but the fullest results cannot be realized in this way alone.

Great credit is due many of the pioneers for their conceptions of power looms, spinning machinery and other fundamental equipment, and perhaps equally great for many of the improvements that have followed later, even though developed by purely empirical methods. It is truly remarkable when we realize that this has all taken place in the absence of fundamental knowledge of textile materials and of the effects of many chemical reactions and physical forces on them.

Bleaching and Dyeing Processes

The chemicals used in cotton bleaching are essentially the same as used since the days when wood ashes, buttermilk and green fields and sunlight were the principal reagents for the process. The modern caustic, chemic and sour, came into use and our present bleaching methods are the survival of many experiments with lime, soda, caustic and potash; chemic in its various forms; acetic, hydrochloric and sulphuric acids, as well as many other materials. The factors of time and temperature of treatment, and strengths of various liquors have also been decided in much the same way.

In spite of all the mill and laboratory work there is an astonishing lack of knowledge about the fundamental effects of bleaching materials on cotton and its impurities. Every cotton finisher has seen oxycellulose, perhaps to his sorrow. The bleacher has a general idea how to avoid it, but wouldn't it be worth while to know what it is? We have theories at present, but we do not know the chemical nature of the material. If we did know some quite unexpected method of avoiding it might be discovered.

In another field, dyeing, research has profoundly affected the whole textile industry. All coal tar dyes are the result of very extensive and highly scientific research by the color makers. In spite, however, of all the work done in their development and application there are many things that we do not understand that we use every day. Why do certain colors in an acid dyebath color wool and leave silk white, while others dye both fibers? The theory of dyeing would probably tell us that it is a phenomenon of selective absorption. This reply is similar to the explanation that certain defects in cotton goods are due to oxycellulose. We can call it something, but we do not know what it is. Students of the subject are still arguing about the nature of the dyeing process. Not enough is generally known about it to harmonize conflicting views and lead to agreement on even the main points at issue.

A Field for Co-operative Work

This brings us at once to the point that there is probably in this country no laboratory or organization capable of attacking such a problem as the nature of dyeing. It is too big for an individual or any ordinary corporation because it would mean a great expenditure without an immediate or perhaps even an ultimate large enough return to a single investigator. If, however, the textile industry as a whole could take up and finance the matter the burden on any one mill or group of mills would be light and the benefit to all would no doubt repay the expense. No one can predict the valuable developments that might follow the actual understanding of why fibers attract dyestuffs. It is reasonable to expect definite practical returns and is certainly no more than good common sense to try to find out.

A somewhat similar problem was discussed at a recent meeting of the Technical Association of the Pulp and Paper Industry. This live organization has considered the problem of fungus or mold growths in pulp. Losses from this source were said to amount to $5,000,000 or more annually, and practically nothing was known until very recently as to the cause and prevention of the trouble. The question of raising $20,000 for extending this research was discussed and among other things it was suggested that a thorough investigation might require ten times that amount. Obviously this problem is beyond any single mill or corporation, but if financed by several hundred mills each would realize a good return on its investment. The solving of such a problem by a group of mills would benefit each one, and while it would not increase the profit of one over the other, or change their competitive relations, it would relieve the personnel of each plant of much nerve-racking trouble and worry. It is probable that many vexing problems in cotton, wool and silk can be solved in a similar way.

Individual vs. Co-operative Research

Whether individual or co-operative research is best for the textile interests is a question too large to try to settle here. A strong point that will doubtless be raised against co-operative efforts is the commonly accepted idea that what will work in one mill will not work in another of the same kind. Even though every other condition may be the same, the weather man may give one locality a different humidity from another and so throw a wrench into the works and results not be the same. Research, already applied, is, however, helping us out of this particular source of variations.

There seem to be more variables and exceptions in handling textiles than in almost any other line of work. Even the results of the ordinary mill laboratory are often looked upon with suspicion but it is no more wonder that the laboratory may fail to check with the mill in some cases than that two plants fail to give the same results under apparently the same conditions. The unaccountable irregularity may be due somewhat to the fact that the raw material, the fiber, varies in the natural state, but is supposed to go through the textile processes, both mechanical and chemical, practically unchanged from its original condition aside from the removal of foreign materials. Iron and other metals as a rule are immediately changed from the ore into a more easily controllable form of matter, the comparatively pure metal, an entirely different substance from its chemical compound as mined. Not so with textiles, the less they are acted upon in process the better from the usual point of view. It should be possible with sufficient study to at least reduce the effects of variables in the materials as well as to more closely control those of the processes.

Technical Problems Not Fully Appreciated

Closely connected with the lack of appreciation of the real need of research, and of the possible results of such work, and to a certain extent the cause of it, is the similar failure to understand the extent and difficulty of the technical problems in a mill by the management. Presumably the case is

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An Approach to Textile Fibre Research

The Importance of Exact Fibre Knowledge—Some Physical and Chemical Characteristics

By *Dr. N. A. Cobb*

Dr. N. A. Cobb, the author of the accompanying article, is well known to many cotton manufacturers as the author of several papers on the cotton fiber that have been read before the National Association of Cotton Manufacturers. In 1916 he was awarded the National Association medal for his paper on "Methods of Determining the Length of Cotton Staple and Illustrations of Their Value." He is associated with the Bureau of Plant Industry of the U. S. Department of Agriculture and is a recognized authority on fibers. Dr. Cobb emphasizes the importance of exact knowledge of the physical and chemical characteristics of fibers as an approach to textile research. He makes it plain that textile research that is not based upon such fundamental knowledge must always remain inexact. The fact that he treats his subject in a somewhat elementary manner must not be interpreted as a reflection upon individual manufacturers, but it is quite correct to regard it as a reflection upon the industry as a whole; few other great industries are so ignorant of the chemical and physical characteristics of their raw materials as is the textile industry. As Dr. Cobb says, "even among textile experts—that is, among those who know most about such matters—the greater and more proficient the expert, the more readily will he admit that our knowledge along these lines is inadequate. It is not what it should be, nor what it could be."

Some scientists may not agree with the emphasis placed by Dr. Cobb upon single fiber investigation, but they will agree that there are numerous problems, involving the biological chemistry of textile fibers, that can be adequately solved in no other manner. Research of this nature is unquestionably necessary as an approach to the solution of many dyeing, bleaching and finishing problems. Whether single fiber research is as necessary or as advisable in the solution of problems having to do with the mechanical treatment of fibers is questionable. Even more questionable are some of Dr. Cobb's statements and theories regarding the artificial humidifications of textile mills. However, these, and the theories that he advances regarding the possible basing of yarn structure upon fiber forms, are manifestedly advanced for the purpose of stimulating interest in the practical possibilities of fiber research. If Dr. Cobb's article is effective in doing this it will have accomplished its principal object.

NOT infrequently the question is asked in what way can technologists at the present time be of the greatest use to the textile industry. There are so very many ways in which experimental science can be of use to this industry that it may be impossible to select from among them that which is most useful. There can be no doubt, however, that all those lines of investigation aimed to give us a more exact knowledge of the physical and chemical properties of the single fibre are among the most important. The reason for this is gradually becoming very obvious. The single fibre is the element out of which the fabric is made. This element repeated untold millions of times is what gives us the final, completed structure. What the brick is to the building, the fibre is to the fabric.

Now, as a matter of fact, we do not have any such accurate conception of the properties of the fibre as we have of the brick, and the main reason is that the fibre is so much smaller. To all intents and purposes it is a microscopic element, and tends annually to be more and more so on account of the demand for finer and finer yarns with which to make finer and stronger fabrics. Take the textile industry through and through, there is not one person in thousands who has any very clear idea of the exact form and texture of the single fibre, whether it be cotton, wool, silk, linen or what not. Even among textile experts, i. e., among those who know most about such matters, the greater and more proficient the expert the more readily will he admit that our knowledge along these lines is inadequate. It is not what it should be, nor what it could be.

Not a Simple Element

The fibre is not a simple element. We must not think of it as of a wire; that is, something of uniform size and of uniform composition. It is something much more like a long and exceedingly slender twig or withe, with its outer bark, inner bark, wood and pith. Not that the fibre has bark, wood and pith, but that it has features that may fairly be likened to them, for it does have an outer, intermediate and axial part, and all these vary one from another in physical and chemical properties,—in color, density, strength and chemical composition, and in many other ways. Then, as all these fibres are the result of growth, they are not uniform from end to end. In this again they differ from a wire, whose physical and chemical properties vary but little throughout its length.

If the animal that grows the wool, or hair, passes through a period of sickness this results in a weak point in the hair. We shed our hair after a severe illness, simply because, during that illness, the scalp, along with the rest of the body, functioned so poorly that it could not build good, strong hair. Later on the hairs break at the weak points and we shed them. A similar thing happens to our finger nails, so that for weeks after a severe illness there may be seen creeping up from the roots of the nail and towards its tip, until it is finally worn away, what anyone can readily see to be a different and, as a matter of fact, weaker growth.

So with vegetable fibres,—these vary, and, like all plant growth, roughly speaking, may be said to reflect the nature of the season in which they grew. It is not so easy, in the case of the vegetable fibre, to point out just how untoward conditions affect the fibre injuriously. I know of no instance in which climatic conditions give rise to a distinctly weak point in vegetable fibre, as described for wool and hair. There has been very little study of this matter, notwithstanding that it is one worthy of very careful attention, and the fact constitutes a very fine illustration of the numerous problems awaiting solution.

Possibility of Controlling Physical Characteristics

It is well known that one of the important spinning properties of cotton, its cling, depends to a very considerable degree on the fact that the fibre is flattish and twisted. These twists in the fibre, first a few turns to the right, then a few turns to the left, arise during the ripening process, but just where and just how and in just what manner we do not know with any degree of exactness. It is sometimes said that the season was too moist, or the season was too dry, and that for this reason the fibre failed to take on the proper degree of twist. These are opinions manifestly based upon general observation, rather than upon scientific experiments.

It would not be difficult to design experiments in the production of cotton in which the conditions of growth were varied in a definite manner; say, with reference to soil, temperature, moisture of the air, and water supply. A study of the fibre produced under various combinations of these conditions might clarify the situation and give us a much better notion of the factors that tend to increase the twist or spirality. Such knowledge would have several important applications. There is a considerable amount of cotton grown under conditions that are more or less subject to control. If we knew the effect of these various conditions on the twist or spirality we could alter them accordingly. Even where we have no control over the growing conditions it would be very important to the industry to be able to estimate more accurately the effect of the current season. In this way we might be able to forecast to a certain degree the qualities of the coming crop.

Fiber Problems Are Microscopic

In our reasoning concerning these matters we always come back to the fact that the problems are essentially microscopic and here let it be said that we have not yet applied to fibres the careful examination and measurement that has been applied to many other things much less important. Take, as an example, one of the finer fibres, say that of long staple cotton. The dimensions of this fibre are such that the common measuring stick of microscopy, the micron, the thousandth part of a millimeter, would have to be applied from one to two thousand times to measure its diameter. A fair comparison would be the ratio of one inch to the dimensions of the largest redwood tree. Imagine being able to examine the cross-section of such a fibre as one would examine with the naked eye the cross-section of a huge log. The comparison is not altogether unfair, for, as before remarked, the fibre varies in composition and structure throughout its diameter in a manner more or less comparable with the way a log varies, with its outer and inner bark and its various rings of wood and its pitch.

Hygroscopic Qualities of Cotton

In considering the hygroscopic qualities of fibre again we may advantageously take the cotton fibre as an example. Under varying moisture conditions of the air cotton takes in and gives out moisture. The amount of moisture it contains has a perfectly wonderful relation to its spinning properties and to its tensile strength. This is a matter of very great moment, especially to the American textile industry. So far as cotton is concerned when it comes to testing, it is a matter of paramount importance. No conditions surrounding such tests cause the experimenter greater concern than the humidity conditions. They must be carefully recorded throughout the experiment and the more experienced the technologist or manufacturer is the more sure he is to admit that, in spite of all precautions, the humidity conditions obtained are too seldom satisfactory.

Unfortunately, the natural humidity conditions in most of our manufacturing towns devoted to the textile industries are very variable. The natural, uniform humidity existing in certain parts of Great Britain and in some European textile manufacturing districts, conditions eminently favorable to good spinning, can hardly be duplicated in any of the cotton manufacturing districts of the United States. Hence the use of artificial humidification has become more or less of a necessity in many American mills if uniform conditions of humidity are to be maintained.

Conditions Difficult to Control

Cotton is very hygroscopic; its percentage of moisture can vary within wide limits. More than this, it is exceedingly quick in its response to any change in the conditions of the atmosphere, more so probably than almost any other fibre. Inasmuch as the spinning quality of cotton varies very materially with its moisture content, it follows that the machinery in American cotton mills needs unremitting attention unless uniform humidity can be established artificially.

Difficult as is the humidity problem of the ordinary manufacturer, where the object is to turn out a certain amount of marketable product, it is even more difficult in experimental work, where in addition to this, it is the object, say to spin two different lots of cotton under identical conditions on different days or in different weeks. Under such circumstances words almost fail to portray the full extent of the difficulties encountered in attempting to reach ideal results.

Unfortunately, too, natural humidity, that is, the humidity of the atmosphere due to ordinary climatic conditions, is different from any artificial humidity so far produced. If large masses of outside atmospheric air having a uniform humidity, masses that may be measured literally in cubic miles, can be drawn upon and admitted freely to a mill, they give rise to spinning

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The Research Department of a Modern Mill

Plans and Equipment of the Cotton Research Co., Inc.—Practical Mill Problems That Are to Be Solved

By *A Member of the Staff*

The most marked difference between industrial research tendencies in this country and abroad is found in the disposition of British and German manufacturers to lean heavily upon their governments for guidance and financial support, while here, in characteristic American fashion, the individual corporation is assuming the intiative, and is developing, financing and controlling its research plant and work.

The new government subsidized research plan in Germany has not advanced beyon dthe talking stage. The textile branches of the British government research scheme have only recently secured sufficient funds, and have yet to complete their organization and commence actual work, although it is over a year since the plan was launched.

We have no such comprehensive plan of textile research in this country, nor has any markd interest been developed excepting among cotton manufacturers. But, while group effort among the latter remains decidedly tentative, two individual research corporations have been formed, one having had research in progress for some six months and the other having just completed its plant equipment. The former, the Textile Research Company, of Botson, is capitalized at $50,000, and will undertake researches and invsetigations for the trade. The Cotton Research Company, Inc., is capitalized at $100,000, and will confine its work to a group of associated mills having an aggregate of about 1,000,000 spindles.

There are several other domestic cotton mill organizations that are well equipped for research, but, with the exception of those mentioned and the cotton and fabric laboratory of the United States Rubber Co., they have done little real research work. The plans and equipment of the Cotton Research Company, Inc., which are the subject of this article, will probably give manufacturers a better conception of the practical possibilities and benefits of research work than a volume of theorizing.

THERE are many things which stamp the beginning of 1920 as the dawn of an epochal year for the textile industry. This line of manufacture has experienced not only the quickening which all other industries have received from the war, but from present indications it appears to be passing through a metamorphosis almost as striking as that of the rather slow-moving caterpillar into the much more intensive butterfly.

Moreover, a striking intensiveness in every subject connected with the industry is becoming evident. Research search and experiment are becoming the order of the day, as a joint result of the cumulation of economic problems resulting from the war, together with the opportunity for proper growth which present circumstances have brought to this field.

Such an indication of the scientific trend, based upon the intensive need of information on cotton, its exact possibilities, and the means for utilizing the knowledge gained in research, is shown in the organization and equipment of the new Cotton Research Company, Inc. The equipment of this new plant is nearing completion and it will be in operation about the middle of February.

The Company's Executive Staff

The plant is located on the top floor of the new building at 1020 Washington street, Boston, and covers an area of over 20,000 square feet. It is the joint project of the engineering and managing house of Lockwood, Greene & Co. in cooperation with the organization of the Pacific Mills. The organization, which will employ from fifteen to eighteen men, is separately incorporated under Massachusetts laws, and is managed by a directorate consisting of the following officials:

F. S. Blanchard, of the Pacific Mills, president; directors, F. S. Blanchard, chairman; A. E. Colby, of Pacific Mills; A. B. Greenough, of International Cotton Mills; A. R. Dickinson, of Lancaster Mills, and Kenneth Moller, of the Lockwood, Greene & Co. engineering department.

J. W. Cooper, formerly assistant superintendent of the New Bedford Cotton Mills Corporation and later in charge of the Fabric Experimental Laboratory of the Firestone Tire & Rubber Company, was selected to take charge of the plant. Subsequently he visited several mills and textile schools, together with the Bureau of Standards at Washington and the testing plant of the United States Rubber Company at Newark in connection with the equipment and management of the proposed plant. C. E. Bauldry, the assistant manager, was formerly in charge of textile experimental work at the Bureau of Standards, Washington, D. C.

A Cooperative Enterprise

It was felt by a number of those connected with the associated managements of Lockwood, Greene & Company and the Pacific Mills that the size of the combined organizations fully warranted the establishment of a plant to do experimental and research work in cotton manufacturing for the joint benefit of the various mills. Accordingly the research committee, which had been organized to serve as a clearing house for the collection of information on their various problems, was asked to look into the whole matter carefully, and came to the conclusion that it would be well to have such a plant in some central locality, preferably near Boston. The research committee was therefore discontinued, and the work turned over to the new Cotton Research Company.

In connection with the organization of the Cotton Research Company, it is of interest to note that the ownership of stock, which involves the proportionate sharing of original cost and operating expenses, is divided among the Pacific Mills, Lockwood, Greene & Co., engineers, and mills under the management of Lockwood, Greene & Co., managers. These mills operate over a million spindles and their product covers nearly everything from the heaviest duck to the sheerest lawns.

Broad Scope of the Work

As there has been some question concerning the functions of the Cotton Research Company, Inc., a brief explanation of how questions referred to this company will be handled is in order. The company is really divided into two departments. First the experimental plant for making actual physical tests on manufacturing problems, and machinery operation in the mills. The work falling into this class refers to such problems as the relative percentage of waste in various cottons; the breaking strength of yarns with different twists and different grades of cotton; the best speeds, drafts and twists for various yarns from various grades of cotton; in fact, all problems which affect the manufacture of cotton cloths.

The second division is in the nature of a clearing house to gather and exchange information relative to mill operation as, for example, the experience of other cotton mills with certain classes of machinery, or the relative merits of different mill supplies and equipment and exchange of information on the experience of existing mills in the operation of their plants. Neither of these departments is supposed to cover general mill engineering problems such as plant layout, equipment necessary to manufacture different classes of goods, mill organization or work of this character.

The purpose in organizing such a plant was that tests of all kinds in the problems of machine operation and in the running qualities of different kinds and mixtures of cotton may be made as carefully and as accurately as possible. The results of all such tests will be made known to all of the mills in the two organizations. Where problems can best be studied in the Experimental Plant, this will be done. If this is impracticable, however, the information asked for will, if possible, be obtained from other sources. The Cotton Research Company will receive manufacturing and other problems which can best be studied in the Experimental Plant, and will also serve as a clearing house for information on problems connected with the employes. Information on such problems as those having to do with physical examinations, day nurseries, dispensaries, etc., will be assembled there from outside sources. Questions concerning matters of this sort, or matters which cannot be properly studied in the Experimental Plant will be taken up with authorities who are familiar with the above problems.

Applications for tests may be made to the Cotton Research Company, Inc., at any time by members of the affiliated organizations and will be attended to as seems practicable and best to the directors with due regard to the general interest of the stockholders. Reports of the results of all of the work of the Cotton Research Company, Inc., will from time to time be distributed among the stockholders, so that they will be available for the use of those connected with the associated organizations.

Problems for Tests and Researches

A few examples of the kinds of tests which may be made are as follows:

(a) Comparison of spinning qualities and waste content of various grades and varieties of cotton, grown in different sections of the cotton belt, and their adaptability for manufacture into various kinds of fabric to the best advantage. Considerable attention is given to planting and breeding special varieties of cottons by planters and it is planned to chart the cotton district and record all available information obtained along this line.

(b) Blending or mixing cotton of various grades to secure uniform strength.

(c) Comparison of spinning qualities of cotton allowed to air for several days before running, against the same cotton opened and run immediately.

(d) Effect on work up to finished product from the use of various styles of beaters, speeds and settings of picking and opening machinery.

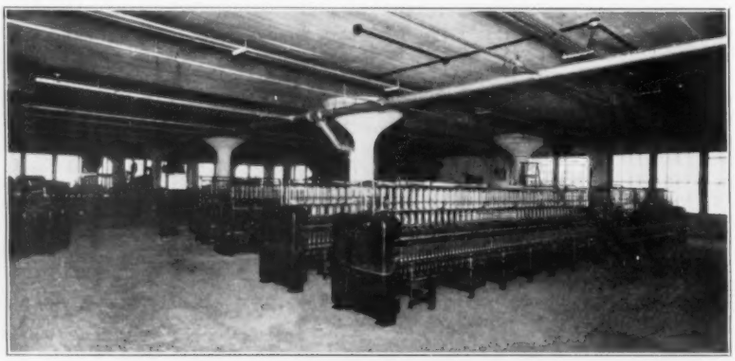
(e) Effect on work up to finished product of various card attachments, speeds, settings, clothing, drafts, weight of laps and sliver.

(f) Advantages and disadvantages of various methods of preparing the sliver for the comber. Various settings, drafts, amount of short fibres compared with long ones removed at the comber.

(g) Effect of strength, evenness and quality of yarns made without one or more drawing processes.

(h) The possibility of combining the slubbing and intermediate process, eliminating one process of manufacture of roving.

(i) Changes in speeds necessary to produce equal quality of goods from different grades of cotton.



SPINNING EQUIPMENT OF THE COTTON RESEARCH CO., INC.

(j) Advantages and disadvantages of rewinding filling.

(k) Determination of best twists to use for various classes of goods to secure best results relative to strength, flexibility and finish required.

(l) Effect of various top and bottom roll settings in spinning.

(m) Advantages and disadvantages of self-weighted and lever-weighted rolls in spinning.

(n) Comparisons of running of work and of finished product made from single and double roving process numbers up to 30's.

(o) Effect of various spindle speeds, drafts and settings on production and strength of yarns.

(p) Comparison of warp and filling wind for warp purposes.

(q) Effect of tensions on beams at slasher and in beam twisting. Study of effects of different mixtures of sizes.

(r) Effect of various angles of bobbins or spools in twister creels.

(s) Effect of moisture and temperature in cotton manufacture; amount of humidity necessary to obtain best results in various departments. Fabric strengths vary as much as 17 per cent. due to moisture changes.

(t) Fabric-strength testing to develop the best at a given cost.

These are only a few of the many problems which will undoubtedly come up for solution.

Advantages and Benefits

It is believed that the following are among the advantages to be gained by the Experimental Plant:

1. It will be practicable to make a great many more tests than could be made in a regular mill without seriously interfering with production and taking a great deal of the superintendent's time.

2. The tests would be in charge of a man whose whole time would be spent on seeing that the tests were made with great care and accuracy.

3. The conditions in a small experimental plant would permit of greater accuracy and care than in a regular mill, as experiments would be free from the interference of the regular productive processes. But, though conditions will be somewhat different from those in a regular mill, it is felt that the experimental plant will provide ideal conditions for comparative purposes.

4. While the Cotton Research Company will by no means take the place of tests run in the different mills, it will prevent a good deal of duplication of tests among the mills. It would render unnecessary many tests, and will suggest to the mills other tests which might confirm the results obtained in the experimental plant.

5. Even if only one test in ten should show something of real value, it would probably be worth while to make the other nine tests in an experimental plant, though it could not be afforded in a mill.

6. Information as to cotton which was gained by the tests would undoubtedly save a great deal of money which would enable cotton to be bought to far greater advantage.

7. Information regarding machinery problems is expected to save greatly in the running of mills or in the erection of a new mill.

The Equipment of the Plant

In arranging the equipment of the research plant, care has been taken to duplicate mill conditions in all vital matters. For instance, the picking department has been partitioned off separately, by fireproofed walls, and wire glass windows, as has likewise the carding, drawing and roving, from the spinning, weaving and warping. In each of these departments humidity will be controlled separately, for experimental purposes, to note results. The same thing is true of temperature records, if there is a desire to keep them.

Power is transmitted electrically to conform with the above arrangement, and individual drives have been used only when they assisted in carrying out this scheme. Otherwise group drives have worked out to best advantage.

In selecting equipment, choice was not made because of any consideration except ability to influence delivery of this equipment at the required time. A mixed equipment is therefore used, and consists of the following: Picking machinery: One bale breaker with vertical opener; one two beater breaker and one single heater breaker; also one single beater finisher picker, one waste machine, two section, for roving waste; one willow for cleaning picker and card waste, with dust receiving equipment placed on the roof. This was due to inability to go downward through concrete floors.

Subsequent to the picker department, the equipment is somewhat specialized. Some is for regular cotton experiments, and the rest is adapted for experiments with waste. In the waste system, two cards are used for single carding. In the department for long staple work four cards are used, two breakers, and two finishers. A Gordon-Hay attachment is also available for experimental use. All of the equipment mentioned so far is made by the Saco-Lowell Shops.

A sliver lap machine is provided for making card laps for second carding. The drawing frame equipment is arranged in two rows in such manner that as many processes of drawing may be used experimentally as desired. There are twenty-four deliveries. One line is arranged for long staple work; the other for short fiber cotton and waste.

A complete combing equipment consisting of one comber, one ribbon lap machine, and one sliver lap machine has been furnished by the Whitin Machine Works.

Following the combing equipment comes the reduction machinery for making roving. This consists of two slubbers, of 36 spindles and 44 spindles respectively, the latter equipped for handling waste and short fiber stock, while the former is for long staple work. Also one intermediate frame of 48 spindles and one fine frame of 96 spindles.

Ring spinning equipment is adapted, like other machinery, to requirements of experiments with all lengths of fibre. There are two 120 spindle waste frames with ¾-inch middle rolls and self-weighted back rolls, for the short staple work; also two of 144 and 168 spindles respectively, for long staple work. There is in addition a Whitin frame of 192 spindles for very fine work. On this equipment of roving and spinning, anything up to 45 hank roving can be made, and any yarns up to 120s can be spun. There are sets of different sizes of fliers for each roving and fine frame, and for spinning frames are extra sets of ring rails fitted up with different sizes of rings. Every conceivable combination may be tried out.

There are two wet or dry twisters for assembling yarn into any desired size of cord, and one twister is furnished with a beam creel for tire cord work. These twisters are of 48 spindle 7-inch, and 60 spindle 5-inch gauges, respectively. Both are equipped with automatic stop motions and hank clocks. There is also a Singer sewing machine for sewing tapes.

There is one spooler for 80 spindles, having 40 spindles fitted for spooling warp yarn, and 40 for spooling filling yarn. For the latter will be supplied a complete set of every type of tension device made for spooling filling yarn; also every type of bobbin holder made will be tested out and its performance tabulated.

VIEW OF SPOOLING, WARPING AND SLASHING DEPARTMENT OF EXPERIMENTAL PLANT OF THE COTTON RESEARCH CO., INC.

There are two Universal winders in the equipment, one of them specialized for tire fabric assembly work, and the other is a 20-spindle machine for regular winding of medium and fine counts.

There is a two-cylinder slasher of extra width, to take beams up to 66 inches between heads. With this slasher are provided two size tanks in order to enable use of two different mixtures of sizing to be run into the same warp, side by side, at the same time. A combination warper and beamer will give any type of yarn assembly desired.

It requires nine looms to meet the requirements of the broad program in mind for experimental work in fabrics, as follows: Three Draper automatics and six Crompton & Knowles, four of tire fabric work, and one regular of Providence model. These provide weaving facilities for making cloth from 40 inches up to 108 inches. The tire cloth loom will give a 72-inch fabric.

Assembly Room

A conference or assembly room is provided, in which the staff of experimenters may confer or the directors may gather for discussions. In this room will be an exhibition placed in cabinets along the walls, containing various lengths of fibers, staples of all sorts of cotton and waste, as well as different exhibits as the results of yarn experiments. Also other interesting data on fabrics, etc., will be kept here in sample form. In addition, the library of the corporation will be kept in this assembly room for easy reference.

It is the intention of the Cotton Re-

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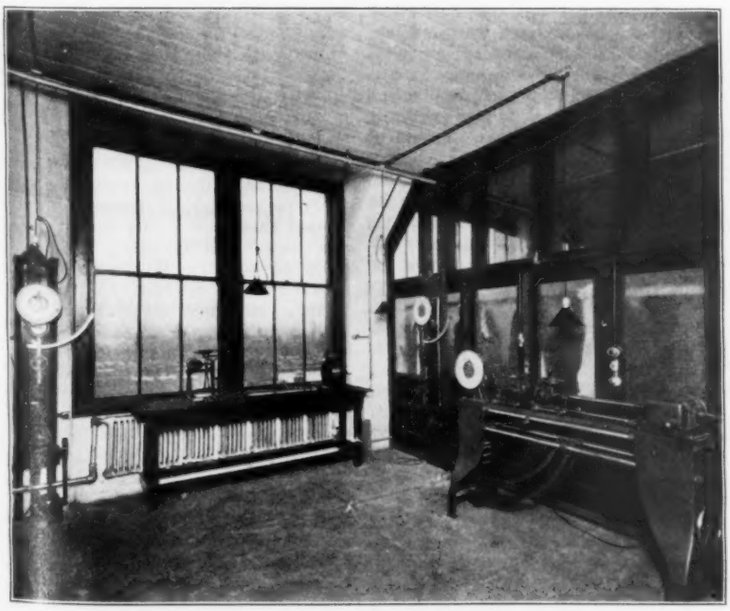

A CORNER OF TESTING LABORATORY IN PLANT OF THE COTTON RESEARCH CO., INC.

The National Research Council—Its Scope and Plans

Designed to Co-ordinate All Research Activities—Links Those in Textiles with All Others

By *Harrison E. Howe**

Committees of the National Council of American Cotton Manufacturers and of its constituent bodies, the National Association of Cotton Manufacturers and the American Cotton Manufacturers' Association, which have been investigating ways and means of instituting systematic research for the cotton industry, were early faced with the desirability of co-ordinating such work with research activities in other industries. Fortunately thye found already organized exactly the link that was needed. This is the National Research Council. Its scope and plans are herewith made plain by Vice Chairman Howe, of its Division of Research Extension.

Briefly stated the Council brings to the textile industries well organized research groups functioning together and representing the various sciences in the industries. Further, in order that the industries may make the most of the opportunity, there is provided a division to assist in the organization of each industry on a basis that will assure the greatest good for the greatest number, with a cost so apportioned as to constitute no burden. The Council maintains no laboratories nor does it have a fund for the establishment of such laboratories. It is in a position, however, to assist industry to establish such facilities for itself and then to advise as to the work to be undertaken.

Mr. Howe states that "The National Research Council offers industry the services of well-organized divisions of science and technology and the possibility of using an extensive Research Information Service. It also offers facilities for the organization of the industry as a whole or in special groups, whereby resources can be combined for such scientific undertakings as seem advisable in each special case. On its part the industry is asked to co-operate whole-heartedly, for it is vitally concerned with the increase of knowledge, in order that products and processes may be improved, the national defense strengthened and public welfare generally extended."

MANY persons look upon the National Research Council as one of the benefits for which the war has been responsible, particularly because it affords an opportunity for organization in scientific work where the lack of such organization has come to be keenly felt. The Council was organized in 1916, shortly after the attack upon the "Sussex," when the National Academy of Sciences offered to undertake the co-ordination of research facilities in this country for work upon war problems. The offer having been accepted, the Academy devised the plan of establishing the National Research Council, which therefore came into being as the result of a war emergency, just as its parent, the National Academy of Sciences, came into being in 1863 when it was chartered by Congress with the object of supplying the Government with scientific advice upon military problems of that day.

The National Research Council is a group of scientific and technical men organized with the co-operation of our national scientific and technical societies, representatives of the Government departments, educational institutions, the industries, and unattached specialists. It is charged with the duty of stimulating and organizing research throughout the country, but it does not seek to exercise control nor to take action that will discourage individual initiative. The Council enjoys the hearty co-operation and support of the various scientific bureaus of the Federal Government, but it is not a Government bureau, nor does the Government share in its financial support.

There has been some question in the minds of scientists themselves as to whether co-operation is either possible or desirable, many believing that the best work could be accomplished by leaving an investigator free to pursue his own bent. But the possibilities of doing more and better work in co-operation upon war problems has been amply demonstrated, both at home and abroad, and there is reason to expect even greater success under peace conditions.

Foreign Research Under Government Auspices

The plan of organization adopted in this country differs principally from those followed elsewhere in its relation to the Government. In Great Britain and the Dominions of the British Empire, in Italy, Japan, and as contemplated in France, Belgium and Germany, departments for scientific and industrial research have been set up as a part of the Government machinery. The groups have been appointed by the Government and in addition to supporting the activities of the Council in question, funds have been set aside in many instances for the assistance of those industries which found themselves able to come together in an association for engaging upon research. Thus in Great Britain one million pounds sterling has been set aside by the Government to be expended during a term of five years in amounts not to exceed five thousand pounds per annum in any one case on a pound for pound basis with industrial organizations duly incorporated and approved by the department. That this plan does not appeal to all industries in these countries is shown by the action of the iron and steel interests in Great Britain where they have chosen to form their own association without the help of the Government department in order that they may be free from the control and limitations which necessarily accompany the expenditure of public money.

The British Department of Scientific and Industrial Research has been very active and is responsible for a great deal that has been accomplished on difficult war problems. In addition to the establishment of the research associations by industries to which reference has been made, they have encouraged and supported the work of individual researches and have initiated work on problems the solution of which is the task of the people as a whole rather than any particular group of industries. An example of this activity is the fuel research laboratory, research upon industrial fatigue, mine rescue apparatus, and the efficient utilization of native woods. In Canada the corresponding Government body has interested itself particularly in an attempt to utilize the western lignites by briquetting processes and otherwise, and in devising plans for a scientific establishment which will in part serve such purposes as the United States Bureau of Standards, and at the same time offer opportunities for industrial research similar to those afforded by certain of our educational institutions.

National Council a Democratic Institution

It has been the general opinion, however, that in the United States better progress can be made by following a somewhat different plan. It is believed that in the sort of work that needs to be done in organizing science and in stimulating research among the industries and our educational institutions, there should be no political influence exercised, no domination by any great industrial group, and a complete absence of those restrictions which necessarily come from the use of Government funds. Hence the organization of the National Research Council on the basis that has been outlined, and the wide democratic backing which it has secured may be regarded as approval of the plan that has been followed. The Council is supported by an endowment established by the Carnegie Corporation following the meeting of certain requirements which involved securing a fund to which approximately twenty of our country's most careful philanthropists have subscribed. In addition, the Commonwealth Fund, the General Education Board, and the Rockefeller Foundation have made it possible to initiate and sustain work of the greatest importance.

Significance of Plan to Textile Industry

From what has been said the present status of the National Research Council, with reference to organization and maintenance, will be readily understood and the program which has been laid out, together with the significance of the plan to the textile industries, can now be discussed.

The Council is unique in that it is the first serious effort to bring together on a large scale representatives of the various sciences in one permanently organized body. Many consider that this alone is worth all the effort that has been put into the Council. There has always been a new series of discoveries made and a greater expansion of our boundaries of knowledge following the crossing of the various sciences. One good illustration from a long list is physical chemistry, in which the sciences of physics and chemistry are closely united. Many industrial problems have resisted solution until attacked with these new weapons. Geophysics is another example, and we are just entering upon a new era in science in which chemistry and medicine are combining. What we may expect from this new union of forces may be illustrated by a recently discovered mercurial compound which has been synthesized by the substitution of an atom of mercury for one of those in a complex dye molecule. This makes possible the use of the unusual penetrating powers of the dyestuff with the germicidal action of the mercury and affords a reagent for use in several types of diseases which heretofore have generally resisted treatment. One important feature is the toleration which the body shows toward this compound whereby it may be retained in certain regions for a much longer time than has heretofore been possible with other compounds.

Besides this actual crossing of sciences, it is frequently found that one branch finds the methods and apparatus of another peculiarly suitable for its particular needs, and this is another advantage which comes from frequent meeting and interchanging of views among the representatives of the different sciences through the National Research Council.

Organized on Divisional Lines

There is, however, a great deal of specialized work to be done and so the Council has been organized on divisional lines. Each division has for its chairman a recognized leader in his field who usually serves for one year and then returns to his customary duties, his vice-chairman becoming his successor. By this plan of rotation new view points are constantly being brought to bear upon the problems in hand, while those men who return after a year's service form active points of contact for the Council with science and industry throughout the country. A brief reference to the work of the different divisions will be helpful, for it will indicate at once what the Council has to offer to the textile industries, while serving many other industries simultaneously.

The Government Division

The Government Division is composed of representatives of the various scientific bureaus of the Federal Government. The division seeks to obtain an even greater degree of cooperation between these bureaus in Government and scientific matters than has heretofore been possible, to discuss the many problems that need the attention of different specialized groups, and to consider the ways in which the other divisions of the Council and those which these divisions represent may be of greater service to the Government. These official representatives of the various bureaus meet in an unofficial way under the auspices of the Council, and it seems certain that not only can new subjects

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* Vice-Chairman Division of Research Extension.

A "Top Crop" of the World Cotton Conference

Appreciation of the Other Fellow's Viewpoint—Cure for "H. C. L."—Production and More Production

By *Randall N. Durfee*

Mr. Durfee needs no introduction to most of our readers, and the fact that he has had the misfortune to have been misquoted and misinterpreted in the past by some southern critics, will not detract from the importance and interest of anything that he may write regarding cotton economics. It may not be out of place to suggest to his former critics that, if they will approach this particular article in the same kindly and broadminded spirit that Mr. Durfee approached cotton ginners and their problems on his recent trip to the World Cotton Conference, they may find that they are in complete agreement on really vital matters.

FOUR months ago there gathered at New Orleans leading representatives from nine different branches of the cotton industry. The personal contact of these varied interests could not help but be of immense advantage to the trade as a whole. Each had ample opportunity to express his views, and when these differed radically, some common ground was found, with the result that opposing factions finally were able to merge their ideas to the advantage of all.

The ultimate consumer was not represented at New Orleans. At the next meeting this class should at least have their views presented; for they are the backbone of the entire industry and are most vitally concerned in the results of such a conference.

This conference, without question, was the most important meeting ever held of the world's cotton interests. What was accomplished can perhaps be more plainly seen at this distance than at the very close of the meeting. The skeptical conversation overheard by the writer after one of the early meetings, between a planter and a news reporter, was not characteristic of the views of the various delegates. Neither of these gentlemen had been able to understand the reason for the conference, but they both promised to enlighten the other when they found what it was all about.

The perpetuation of the organization responsible for the conference, so that it is now permanent, is sufficient reason for the meeting, even if nothing else had been accomplished. We now have an organization to which all questions relating to the industry can be referred; while it cannot enforce its decisions its recommendations should be far reaching and will probably be accepted in most instances.

Value of Personal Contact

The personal contact of grower and spinner was of inestimable benefit. Many points of difference were explained away; each got a better idea of the other's point of view. This applies equally as well to the other interests represented. Previous publicly expressed views of the different branches of the cotton industry were largely propaganda designed to influence their particular interests favorably; they were seldom for the good of the industry as a whole.

Resolutions were framed most moderately, for the framers knew that their resolutions would be kindly but carefully criticized and consequently they could not afford to present radical opinions. An incident showing the result of personal contact occurred when the resolutions of the growers came before the spinners committee. These were very much more conservative than expected, and while there was some criticism, the general view was expressed by a manufacturer who said that, when the growers showed such an eminently fair attitude toward the whole question, if the spinners did not meet these views in the proper spirit they alone would be responsible for putting the wheels of progress back many years, so far as the cotton industry was concerned. These resolutions were then passed by a practically unanimous vote. With very few exceptions this was the spirit which characterized the entire conference and made it such a decided success.

Ginners Get First Financial Advantage

The recent radical advance in the price of cotton dates distinctly from the meeting at New Orleans, with the result that probably no division of the textile trade received such direct and immediate financial advantage as the growers of the raw material. Spinners generally did not appreciate the condition of the crop till the party reached New Orleans, but a close inspection of the fields allowed by the stops at Charlotte, Greenville and La Grange had produced distinct shock. As a result of this first-hand information the wires were kept busy to both domestic and foreign points advising the purchase of cotton; prices were lifted almost immediately. Higher prices were bound to come, of course, but the first startling advance can be credited almost entirely to the attitude of those spinners who had seen conditions for themselves.

The general statement has recently been made that if present prices do not increase cotton production nothing can. This is only partially true; present prices should certainly stimulate production, but the use of the small farm tractor and an improvement in cultural methods will have far reaching influence in not only increasing production but in lowering costs.

Do Not Seek Unduly Low Prices

The grower of cotton is entitled not only to a fair return for his labor, but also to a fair return on his investment; this applies equally as well to the grower of any other crop. There seems to be an erroneous impression among some sections of the cotton trade that the spinner wants to unduly depress the price of cotton; this is not true, for the spinner knows such a policy to be economically unsound and therefore not to his interest. Spinners want the growers of all crops to receive prices which mean a profit to them. Some of them object to the methods of computing the present cost of raising cotton, and they also do not understand the reiterated claim that cotton has been an economic curse to the South; certainly the spinner cannot be held responsible for this.

Must Adopt Modern Methods

The millions of dollars lost to the grower yearly under present methods represent an inexcusable economic waste. We can refer to the causes of this waste only hastily. We must include in them seed selection and the tenant system of farming, the latter happily decreasing with the prosperity of recent years. This tenant system might be referred to as the absentee landlord system rather than the tenant system; it is responsible more than any other one thing for what some people are pleased to call the economic slavery of the farmer and his family. Diversity of crops must be insisted upon, not only because the South should raise its own food stuffs instead of importing them, but also to enrich the soil impoverished by continually planting one crop. Modern agricultural methods must be employed, involving the use of tractors and labor saving machinery. Over 30,000,000 acres of land are planted annually to cotton; for the last four years the crops have scarcely averaged 11,000,000 bales; hardly a bale to every three acres. Such returns are almost disgraceful and are due almost entirely to the methods employed. Surely modern agricultural methods should improve on these returns.

The writer was told recently by a man who was born and has lived his whole life in the South and is thoroughly familiar with cotton, that there are isolated sections in the South to-day where no progress has been made in the cultivation of cotton during the past fifty years. With diversified farming, rotation of crops and modern agricultural methods the South should raise all its feed for man and beast and produce a bale of cotton to every acre, instead of a bale to every three acres. This may seem a dream, but the day is coming when it will be a reality. The soil is there and the ability of the Southern planter will bring this to pass.

Closer Relations Advantageous

The interests of the producer, the spinner and the ultimate consumer are identical; neither wants to make a gain by causing a loss to the others. The closer relationship of all three should prove of distinct advantage to all. The spinner should certainly become more familiar with the problems of the grower and the grower should certainly change his methods of handling the crop when the spinner conclusively shows him where improvements are desirable.

The man who grows any crop should receive a just reward for his efforts; this means a fair day's pay for a fair day's work. A legitimate profit is also due as a return on his investment. This applies not alone to cotton, but to every other crop.

Common Sense Method Awaiting Adoption

After the crop is gathered waste continues, but these losses are so apparent that one wonders why they have continued. Here are some of the waste preventives: Gin compression with a uniform density bale properly protected; proper warehousing, which means the entire elimination of country damage and tremendous savings from reduced insurance; a uniform warehouse receipt showing weight, grade and staple, enabling the owner to take advantage of favorable rates for his loans to carry crops. All of these items combined mean the saving of millions and should cause people to wonder why such conditions are allowed to exist.

Proper warehousing and classing mean lower insurance and cheaper interest. This would make it impossible for the dishonest cotton buyer to so camouflage any transaction as to cheat the grower of his honest market price; also, while it would not prevent any of the present handlers of cotton from making a legitimate profit, it would save the spinner from paying fictitious profits to the broker and in the end would be a saving to the ultimate consumer.

Dangerous Economic Situation

Present economic conditions are exceedingly dangerous. These conditions concern every man, woman and child in this country and throughout the world. No one knows from day to day how Europe and the war-stricken countries can finance their needs. Everyone knows that unless America gives financial assistance, and that soon, the whole financial structure of Europe is in danger of collapse. If this happens America will surely suffer. We are living in a fool's paradise and are becoming a nation of spendthrifts, when we should be practising thrift more closely than we did when we were actually at war. Our whole economic life must be changed, and this applies to the grower of cotton as well as of wheat, to the spinner of cotton as well as to the miller of flour, to labor as well as to capital in all branches of industry. The present extravagance must stop, and the only way of reducing the high cost of living is by increased industry, increased production and thrift.

The foundation of prosperity is not the restriction of output for the sake of advancing prices; restriction may have a temporary effect, but it only leads in the end to disaster. The most successful enterprises are those which produce the maximum output, thus making possible a minimum cost; and it is these enterprises that are the most profitable. The above applies to agriculture, labor and industry both North and South, East and West. Increased production does not necessarily mean a lowering of prices below the cost of production.

Why Prices Are High

For the past few months there has been a general feeling of unrest throughout the country. The common reason for the spread of this feeling is generally attributed to the rapidly increasing cost of living. Commissions of investigation have been appointed by the Federal and many of the State governments, but so far no solution has been discovered which is acceptable to the people at large. It does not seem possible to obviate higher costs with the

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Cotton Exchange Attitude on Broader Contract

Technical Functions of a "Hedging" Contract Must Not Be Endangered by Modifications

By *Arthur Richmond Marsh,*
Editor *The Economic World.*

The primary and almost sole use made of the cotton futures contract by operators in fully 95 per cent. of their transactions is to insure prices of contracts in actual cotton. While many members of the New York Cotton Exchange have favored for a long period the modification of the contract to allow delivery upon it in southern concentration points of actual cotton certified and held in bonded warehouses, a larger number of members fear to make the change lest unperceived and unconsidered damage be done to the main, or price insurance, function of the contract.

In view of the fact that a committee of the National Council of American Cotton Manufacturers has been appointed to confer with a committee of the New York Cotton Exchange upon this subject, for the purpose of discussing ways and means of securing such modification of the futures contract, TEXTILE WORLD has asked Arthur R. Marsh, former president of the Exchange, to review the subject, and his article, outlining the attitude of Exchange members and the reasons impelling favorable and unfavorable opinion, indicates that there are many serious, but not necessarily unsurmountable, obstacles to be overcome before a practical solution of the problem can be developed.

Mr. Marsh prefaces this part of his article with one of the most lucid and interesting expositions of the functions and use of cotton futures contracts that has ever been written. Careful study of this by spinners and growers, and by Congressmen who may be interested in restrictive legislation, can hardly fail to give them a better realization of the economic value of such a price insurance and stabilizing factor.

THERE are in the United States two cotton exchanges in which contracts for the future delivery of cotton are made and dealt in upon an extensive scale: The New York Cotton Exchange and the New Orleans Cotton Exchange. In a number of the larger centers in the southern states, besides New Orleans, are to be found institutions designated as cotton exchanges, but all of these are of the nature of local associations of cotton merchants engaged in the buying and selling of the actual cotton produced in their respective territories, and in none of them is there trading in what are commonly called future contracts.

In neither the New York nor the New Orleans Cotton Exchanges, on the other hand, is there any appreciable amount of trading in actual cotton, though there is, of course, an abundance of such trading in the general markets of both New York and New Orleans. The latter city is, in fact, one of the most important points of concentration for the American cotton crop; it always has a large stock of cotton physically present in its local warehouses; and the daily transactions in this cotton regularly run to large figures.

New York's Large Trade in Spots

The New York dealers in actual cotton do not as a rule bring to New York the actual cotton which they have bought and have in process of distribution to the spinners at home and abroad; to save expense they allow their cotton to remain at or near the points in the South at which they purchased it, until they are ready to give instructions for its shipment to its ultimate destination in the United States or in some foreign country. Hence, from a statistical standpoint, the New York stock of cotton normally appears very small in comparison with the New Orleans stock, and, in fact, with the stocks held at a number of other places in the south. This should not, however, be interpreted as meaning (though it is too often erroneously so interpreted) that the volume of the trading of New York merchants in actual cotton is smaller than is the volume of such trading at the Southern points where the stocks are larger than they are at New York; precisely the contrary is in reality the case. But it must steadily be borne in mind that this trading in actual cotton by New York merchants (and the same is true of the similar trading of New Orleans merchants) is entirely distinct from the normal dealing in contracts for the future delivery of cotton on the exchanges.

Delivery of Actual Cotton Seldom Involved

Hard experience has taught those engaged in the cotton trade proper that there is almost no essential part of the machinery of modern business which is so little understood by outsiders, including in this class for the time being great numbers of persons engaged in the cotton manufacturing industry and in the handling of the products of this industry, as the function, purpose and mechanism of contracts for future delivery made on the great cotton exchanges. Ostensibly these contracts are contracts of purchase and sale of actual cotton, and call for the physical delivery, during some specified month in the future, of the definite quantities of cotton named in them. Practically, only an infinitesimal part of the future contracts made on the New York and New Orleans Cotton Exchanges are entered into by either buyers or sellers with the expectation or intention that the designated number of bales of actual cotton will be delivered, in the ordinary sense of the term, by the sellers to the buyers in the course of the delivery month. It is true that the rules and regulations of both the New York and the New Orleans Cotton Exchange, and the future contracts of which these rules and regulations are an invariable and essential part, are so drawn that any buyer who desires to have actual cotton delivered to him will be certain to receive it, while every seller who desires to make physical delivery of his cotton will find an opposite party who will receive it from him and pay him cost for it when the delivery month comes round. None the less, as has been said before, it happens in the case of only a small proportion of the transactions on the Cotton Exchanges that the buyers intend or desire to take physical delivery of the number of bales of cotton specified in their contracts of purchase, or that the sellers intend or desire to turn over to the buyers the number of bales of cotton specified in their contracts of sale.

Much Ignorant Criticising of Futures Trading

To the outsider unfamiliar with the conditions and methods of the cotton trade, as this has been conducted in modern times, a state of affairs such as has just been described appears to be utterly paradoxical, if not something a good deal worse than paradoxical. He finds it incomprehensible that millions, and probably hundreds of millions of bales of contracts for the future delivery of cotton should be entered into every year by business men of unquestioned probity and commercial responsibility, with no intention on the part of these business men to fulfill specifically what seem to him to be the plain terms of these contracts as they stand. Not infrequently such an outsider jumps to the conclusion that the contracts themselves are illusory, that they are mere "phantom contracts," to employ an expression of which congressional critics of the cotton exchanges were fond a few years ago; and the hasty deduction is drawn that all trading in contracts of this kind must be essentially aleatory—pure "gambling in price quotations (or chalk marks on the quotation board)," as it is very commonly expressed. Every one who has followed the agitations within and without Congress on the subject of the alleged abuses on the cotton exchanges, as these agitations have risen and subsided during the past decade and more, is thoroughly acquainted with the locutions just quoted and with the destructive conclusions sought to be deduced from them by the critics of the exchanges.

The Real Gamblers Are Those Who Do Not Hedge

For members of the cotton trade, however, there is certainly nothing illusory, much less aleatory, or of a gambling nature, about the future contracts they make on the Cotton Exchanges. For them these contracts are an indispensable adjunct to the conservative carrying on of their business. In their eyes, when they make use of these contracts they are reducing to a minimum the element of hazard or blind chance in their operations, while those who do not make use of them are in real truth "gamblers"—or, to put it less harshly, "speculators," instead of prudent merchants availing themselves of all existing safeguards against the vicissitudes of business in general and of their own business in particular.

It goes without saying that, since it is a primary principle of the cotton trade that through the making of contracts for future delivery on the cotton exchanges there is a most important reduction in the risk borne by the cotton merchant, these contracts are of an exceedingly substantial and dependable character, and as far as possible from being "phantom contracts," however foreign the form of settlement of them may appear to be to those unfamiliar with their function. As a matter of fact, they are in actual practice for the most part settled in much the same way that indebtedness of a pecuniary character is customarily settled through the machinery of the banks; namely, by a continual process of "set off" and payment of mere balances in one or the other direction in actual cash, though by their terms all debts are payable in their totality in cash.

On the cotton exchanges, the quantity of actual cotton required to settle a large number of future contracts is proportionally very small, just as in the clearing houses of great cities the amount of actual cash paid by the debtor to the creditor banks from day to day is insignificant in comparison with the sum-total of the indebtedness which are cleared. But in both cases the realities are preserved, and values are prevented from becoming purely idealogical, by the necessity of physical delivering (and receiving) enough actual cotton or actual cash to represent any contractual balance that is not accounted for in the "set off" of obligations on the one side and on the other.

The substantiality and validity of contracts for the future delivery of cotton on the great Exchanges, and something of the mechanics of the practical settlement of such contracts, having now been shown, we may well say a word about the true object which members of the cotton trade have in view in the great majority of cases when they enter into these contracts. It is entirely safe to say that the sole purpose behind at least 95 per cent. (and probably a considerably larger percentage than this) of all these transactions is to obtain the insurance they afford against losses due to fluctuations in the price of cotton. The Cotton Exchanges are in the last resort great price insurance markets for the cotton trade and nothing else, the transactions involving the delivery and receipt of actual cotton being wholly subsidiary to those having the larger end in view. In the parlance of the cotton trade, contracts for the future delivery of cotton, which are bought or sold for the protection they will give against losses through price fluctuations, are called "hedge" contracts; and the buyers and sellers of them are said to be "hedging" their forward commitments in actual cotton, or the stocks of actual cotton they have on hand and still unsold, until the process of distribution can be completed and the risk of loss by reason of mere changes in price is removed. Since the early 70's of the last century the cotton trade has been steadily building up and enlarging this system of "hedging," until it has now become fundamental in all merchandising operations in raw cotton, unless those of an essentially speculative kind be excepted. It should be added in passing that the same system is now employed in the grain trade to some ex-

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Plans of Union Warehouse and Compress Co.

A Business Solution of Many Cotton Problems—Will Undertake Warehousing, Compressing and Financing

By *Rufus R. Wilson,*
President Union Cotton Warehouse Organization Company

For years growers and spinners have been complaining of the inadequate facilities for warehousing raw cotton, the crude methods by which it was handled, and the great resulting damage to the staple. The ginning, compressing and transportation of cotton are intimately connected with its proper warehousing and improvement in the latter, if properly worked out, cannot fail to result in betterment in the former. Of possibly greater importance is the financing of the crop, and this, too, can never be placed upon a sound basis until a sufficient number of correctly located, modern bonded warehouses are provided. The adequate and right warehousing of cotton, therefore, appears to hold the solution of many of the most important problems faced by the trade.

Growers, spinners and bankers have been talking for years of plans for the correct solution of these problems, and have adopted hundreds of resolutions and recommendations with this end in view, but until now no well rounded business solution has been forthcoming. And it seems self-evident that the problems can never be permanently solved except on a business basis. The Union Warehouse and Compress Company proposes such a solution, and its organization company is now completing its preliminary survey for the underwriters. The story of what has been accomplished and what is proposed is of interest to every one connected with the industry and is covered in the accompanying article by Rufus R. Wilson, president of the organization company.

IT has long been well known in the cotton industry that sufficient facilities already exist to house most of the cotton ordinarily offered for storage. However, the allocation of these warehouses is such that they do not adequately serve the storage needs of the producer, merchant and spinner. They are not located with respect to distribution so as to best serve the needs of the trade. For this reason much cotton that should be properly housed is now "stored" in open lots, streets and platforms, accumulating "country damage." Furthermore, many of the existing warehouses are so poorly constructed and carelessly operated that insurance rates for cotton stored in them are abnormally high and warehouse receipts issued by warehousemen are, in many cases, most unsatisfactory collateral for bank loans.

Cotton warehousing is a financial as well as a physical proposition. But a small portion of the cotton now stored and insured in warehouses would be so stored and insured if it were not necessary to do so in order to negotiate loans with cotton as collateral. The banks advance money liberally on cotton when properly stored and insured. Many Southern bankers say they prefer cotton to real estate when used as collateral, and will advance money on it as readily as on government bonds. But the trouble has been, and still is, with the character of the warehouse receipts as evidence of the cotton's safety, ownership, weight, and deliverability. Fully conversant with these conditions, a group of men interested in the cotton industry from one angle or another are organizing the Union Warehouse and Compress Company for the purpose of standardizing cotton warehousing both in the South and in the North.

Endorsed by Cotton Conference

That the World Cotton Conference at New Orleans last October clearly recognized the importance of establishing adequate facilities for cotton warehousing was evidenced by the unanimous passage of these resolutions:

"Resolved, That the Conference insists upon the importance of erecting warehouses at all gins or other points where baled cotton is held either for short or long periods. No bale of cotton should ever be left exposed to either wind, sun or rain.

"Resolved, Further, That the Conference recognizes the paramount necessity for warehouses, and pledges its support and influence to those individuals, associations or communities who undertake to establish at proper strategic trade and transportation points warehouses that will furnish:

"1. Proper physical protection to the bale.

"2. Low fire insurance rates.

"3. Receipts showing weight and grade of the bales covered by them.

"4. Financial strength and methods and scope of operation that will make these receipts acceptable in all world markets, either to the purchasing buyer or to the lending banker."

Organization Corporation

A preliminary company for the purpose of accomplishing this has already been formed. The Union Cotton Warehouse Organization Corporation, incorporated last spring, for months has been busily engaged in collecting materials, information and data for the incorporation and operation of the Union Warehouse and Compress Company on right lines. It is composed of representative men in the cotton trade, largely from the South, with a liberal sprinkling, however, of Northern spinners and of others connected with allied interests. Among those identified with the Organization Corporation may be found the names of Robert Amory, Boston, Mass.; James T. Broadbent, Columbus, Georgia; Edward S. Butler, John F. Clark, Frank B. Hayne and William B. Thompson, New Orleans; C. L. Cobb, Rock Hill, South Carolina; A. J. Dossett, Waco, Texas; W. B. Drake, Jr., Raleigh, North Carolina; Arthur J. Draper, Charlotte, North Carolina; Randall N. Durfee and W. Frank Shove, Fall River, Massachusetts; J. W. Evans, Houston, Texas; G. A. Gordon, J. K. Livingston, M. A. O'Bryne and A. J. Ritch, Savannah, Georgia; W. S. Griffin, Greenville, South Carolina; Lloyd M. Hooper and James B. Ellis, Selma, Alabama; F. M. Inman, Atlanta, Georgia; W. L. Lancaster, Montgomery, Alabama; J. E. Latham, Greensboro, North Carolina; John A. Law, Spartanburg, South Carolina; William L. Lyall, Passaic, New Jersey; James R. MacColl, Pawtucket, Rhode Island; W. Gordon McCabe, Jr., Charleston, South Carolina; Elias Porter, John Flippin, Joseph Newburger, and L. K. Salsbury, Memphis, Tennessee; Edwin G. Seibels and T. B. Stackhouse, Columbia, South Carolina; E. Kent Swift, Whitinsville, Massachusetts; James Thomson, New Bedford, Massachusetts; Sidney Y. West, Little Rock, Arkansas, and forty or fifty more equally representative men.

Preliminary Work Done

The work upon which the Organization Corporation has been so intensively employed during the past six or eight months has been to determine, as accurately as possible, the warehousing needs of the South and the North; to negotiate and close bargains with the owners of as many as possible of the existing warehouses and compress plants which fit into the general scheme of standardization mapped out; to select sites, negotiate for real estate and prepare standard plans for the erection of new warehouses and compresses at points that appear advisable to cover in the chain, and finally to negotiate with financial houses for the underwriting of the securities that will have to be offered to the public for investment, when the time arrives.

With this end in view the Organization Corporation has employed engineers, architects, traffic men, financial and other experts and has presented a report to the investment banking house selected to take charge of the underwriting. This report has been accepted, and, as soon as the formalities incident to a transaction of such magnitude have been gone through with, the Union Warehouse and Compress Company will be incorporated; the properties, for the purchase of which negotiations have been under way, will be transferred to it; work of construction started at points where new warehouses have been determined upon, and the securities of the company offered at public sale. It is expected that, during the coming winter, all of the above will be accomplished and the warehouses of the Union Warehouse and Compress Company will then be ready to receive cotton and other commodities for storage.

Will Take in Compressors

Cotton warehousing and compressing are closely allied operations. Nearly all of the compress plants of the South are equipped with more or less adequate warehouse facilities. In some sections, where the warehousing and compressing of cotton are carried on jointly, the warehousing feature is the important item, the compressing being an adjunct. In other sections compression is the most important factor, warehousing being but a feeding feature to the compress.

It is the intention of the Union Warehouse and Compress Company to enter largely into the compression of cotton with a view to compressing as many bales as possible of a given crop to an even density. Accordingly, arrangements have been made for the taking over of some sixty-five compress plants and for installing high density presses at many points where such presses do not now exist. At most of the compresses to be taken over, the warehousing facilities will be increased and those for handling cotton extended, standardized and modernized.

Compresses to Be Taken

The compress plants to be taken over by the new organization are those of the Atlantic Compress Company, twelve in number, located in Florida, Georgia and Alabama; those of the Newburger Cotton Company, twenty-six in number, located in Arkansas, Tennessee, Mississippi and Louisiana; and those of the St. Louis Compress Company, controlled by the Lesser-Goldman interests, located mainly in Arkansas and Missouri. There are, in addition to these, some ten scattered presses that will be taken into the combination. Special attention will be paid by the Union Warehouse and Compress Company to the compress and storage facilities at the big concentration points: Norfolk, Charleston, Savannah, Atlanta, Mobile, Houston, St. Louis and Memphis, and to furnishing increased, standardized service at these cities.

Distribution of Plants

It is proposed at the outset to establish but two warehouses in the North. One of these will be located at Providence, or if a suitable property or site cannot be obtained at that city, at some other point on Narragansett Bay on deep tide water, accessible to rail. The initial capacity will be one hundred thousand bales, with provision made and land acquired for double this capacity; indeed, in all of the cases hereinafter described the initial capacity contemplated will be stated, and in each instance provision will be made for increasing it as occasion demands. At Providence negotiations are under way for the purchase of an existing plant. Should these fail, however, a new warehouse will be constructed. This will serve the needs of the spinners and brokers of southern New England as well as those of many of the big merchants of the South who often carry large stocks of cotton in the North.

Serving Northern New England as well as New York City, New York upstate and New Jersey, there will be a warehouse built at Albany, Schenectady or some nearby point. A warehouse in this section has been determined upon because it is central as a distributing point for the mills in the localities named, and because it is a rate breaking point for goods coming through from the West and the South bound into New York and New England. This warehouse will be planned for an initial capacity of one hundred thousand bales.

Continuing south, at Norfolk there is ultimate need for a storage capacity of between two hundred thousand and three hundred thousand bales. There are several warehouses in that city, available for taking over, for which negotiations are in progress. Failing a

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Booming Irish Linens in United States

Big Cooperative Advertising Campaign in Operation —Satisfactory Results Despite Adverse Conditions

By *Alfred S. Moore, Belfast, Ireland*

Numerous successful cooperative publicity or advertising campaigns have been conducted in this country through National and trade mediums by various groups of manufacturers and producers. Notable examples are those of various lumber and fruit grower's associations. Certain sections of the knit goods industry have considered the advisibility of some National campaign to broaden their market, but have considered lack of standardization an insurmountable handicap.

In view of the fact that this country is the house of advertising, it is a case of "carrying coals to Newcastle" for Irish linen manufacturers to initiate the first big cooperative publicity campaign ever conducted by textile manufacturers, and to spend here a joint appropriation of $450,000 at the rate of $150,000 a year. It is quite as much to the credit of the Irish Linen Society that they should have sought an American organization, the Dry Goods Economist, to undertake the promotion of their plan and to round it out in the light of their broad experience.

Our Belfast correspondent describes some of the salient features of the undertaking, which, by the way, involved a radical readjustment of merchandising policies and the elimination of trade abuses, as well as the popularizing of Irish linens and a guarantee trade mark. Other manufacturers who may think that their case is more difficult should remember that, of all textile manufacturers, the linen trade has been most seriously handicapped by raw material scarcity. The very fact that an advertising campaign could be conducted successfully under such a handicap, and with prices relatively higher than for all other textiles, gives it added interest and significance.

OUT of evil good often comes. War with all its destruction may even be productive of good results alike to humanity and to commerce. In the latter respect one organization at least has been created out of the turmoil of hostilities. The Irish Linen Society with Belfast headquarters has been founded for the good of the linen industry as its principal aim and with the additional ambition to so standardize and improve this famous fabric that the very name "True Irish Linen" will be a household guarantee of perfection of quality and complete reliability.

A Pre-War Conception

Although the Irish Linen Society might be termed a war product it is really a pre-war conception. For sometime previous to the commencement of hostilities it had been recognized that the linen industry was not making progress comparable with other textile industries. For years its exports had remained almost stationary and as regards improvements in production it might be safely conceded that, with the exception of some minor advances in some of the machinery, the old methods of manufacture which had been familiar in the days of the Pharaohs of Egypt were still being followed.

As a matter of fact the best linen was not being produced in Ireland but in foreign countries and was being imported into Belfast, the world's linen capital. Assuredly then the time was ripe for a change in methods and policy and that movement for reconstruction later determined itself into the form of the Irish Linen Society which move was superinduced by the war needs for greater and more uniform production. The Allied Air Ministries had determined by exhaustive tests that there was no other material possible for use on airplanes than Irish linens which in comparison of tensile strength and durability for weight outclassed all other materials.

Undertake Advertising Campaign

It was decided that the Irish Linen Society should be representative of all sections of the trade from the flax grower to the merchant of the finished product. The response by the trade to the financing of the idea was instantaneous, and an index of their enthusiasm and desire for "better business" methods is evidenced in the fact that at a single meeting the sum of $450,000 was guaranteed, with the main purpose of the promotion of a big advertising campaign to be placed in the hands of the Dry Goods Economist organization of New York and which would entail an expenditure of $150,000 a year for a preliminary period of three years. This move was made in the light of the fact that the United States is the world's best linen-buying nation, taking approximately 49 per cent. in normal years of the world's linen exports.

Organization of Campaign

Hubert Webb, a prominent figure in the linen industry in Ireland, was elected chairman of the society. Samuel G. Haughton, managing director of the firm of Fraser & Haughton, Ltd., accepted the position of administrator for the society during the formative period. So soon as the campaign was started these two gentlemen visited the United States. A series of meetings was arranged in the largest wholesale centers of linen distribution where the aims and ambitions of the society were carefully explained to large meetings of linen importers, wholesalers and distributors.

As soon as these meetings were over Mr. Webb returned to Ireland, leaving Mr. Haughton there to complete the details of organization of the industry in that country. His first labor was to arrange full co-ordination among the great importers of linen. This he most successfully did with the assistance of a committee elected from among the importers and by a series of meetings including the whole linen colony.

Success Under Adverse Conditions

The first policy was the stabilization of prices which could be practically the only steadying influence against the orgy of fluctuations which characterized the other textile fields. By explanatory advertising, fundamental economic facts were explained to the trade. The reason for the high price of linen was covered and the fact that there would be no reduction in the price for a long time to come was emphasized.

The success of this campaign is apparent when it is realized that there was no panic in the linen trade, but that, on the other hand, in spite of the fact that only 25 per cent. of the normal import of linen in the United States has been possible owing to the shortage of raw material, retailers throughout the country report their linen business as being satisfactory under the circumstances.

Unique Details of Plan

Mr. Haughton's next move was to found a New York office and information bureau of the Irish Linen Society with Captain W. Shaw Thomson as assistant secretary of the New York committee in charge. The object of this office is to handle all American correspondence, form a connecting link between the Dry Goods Economist advertising work and the new committee of linen importers. In addition, to compile an accurate buyers' directory so that the many general inquiries for linen may be directed to those houses who are in the best position to supply the class of merchandise requested.

The first part of the advertising program was mainly trade advertising to keep linen buyers throughout the country fully posted on all these moves and plans. Later consumer advertising was commenced with a dual purpose: To keep faith with distributors who undoubtedly expected the Irish Linen Society to help them sell their stocks, and to acquaint the linen-buying public with the important fact that linen was again available at prices justified by economic reasons.

Society Will Have Guarantee Trade Mark

The next move of international scope will be the adoption of a guarantee trade mark to go on all merchandise manufactured and distributed by the members of the Irish Linen Society. This trade mark will be to linen what the word "sterling" is to precious metal; not an individual selling brand, but a guarantee of purity and uniform quality.

With practically two years start, the Irish linen industry will have fully acquainted the trade and the public with the idea that Irish linen is synonymous with reliability and uniform quality and it will be practically impossible for continental countries to oust Irish linen from its position.

With the Flax Society Ltd. of Ireland cooperating to keep the mills supplied with high standard raw material, and with the Linen Research Association keeping science and chemistry working constantly to improve methods of production, the great Irish product itself will rapidly assume that position in the textile world to which it rightfully belongs by reason of its inherent virtues and sentimental values.

An English View of American Finishing Trade

Most Impressed by "Get-Together" Spirit, Also Surprised at Frankness of Manufacturers

One of the most representative groups of English textile men which attended the World Cotton Conference at New Orleans last October, was that representing the dyeing, bleaching, printing and finishing trades, most of them being members of the Allied Trades Association, which occupies in England the place filled in this country by the National Association of Finishers of Cotton Fabrics. Before and after the Conference this party devoted most of its time to visiting the leading finishing plants, being accorded every opportunity for their inspection and being received everywhere in the most cordial manner. The members of the party made evident before they sailed for home their appreciation of the hospitality and courtesies extended to them, and now J. L. Edmondson, secretary of the Allied Trades Association, and a member of the party, puts their appreciation on public record in an interesting article reviewing the salient features of their visit here. The article has already been published by The Textile Recorder, Manchester, Eng., but will be new to most of our readers. It seems to mark the beginning of a new era of cordial relations between these rivals in international trade, and may result in more frank and cordial business relations between the members of the Allied Trades Association.

By *J. L. Edmonson,* Secretary Allied Trades Association, Manchester, Eng.

IF any section of the cotton trade might have expected to be only remotely concerned in the World Cotton Conference, it was the finishing end of the industry—that which comprises bleaching, dyeing and calico printing. Working for the most part on commission orders for merchants and shippers, and having little or no direct contact with even the spinner or manufacturer, the members of these branches, when urged to engage in a Conference which ostensibly was to be devoted almost wholly to questions associated with the growing, handling and financing of raw cotton, might have asked: "What's Hecuba to us, or we to Hecuba?"

Yet if their participation in the World's Cotton Conference had had no other result than to give them the chance of taking part in the proceedings at New Orleans, of feeling—as every other section must have felt—in a new and quickened sense, the community of interest which cotton trade problems of any one section has for all, and how

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Foreign Markets Found by American Buyers

Production Slowly Improving and Sold for Months to Come, But Yardage Not Large

By H. Edwards Fayes

What has been discovered by buyers in markets abroad which can be adapted to the needs of local operators is told in the accompanying article. A survey of lines that have been purchased from foreign centers for use in this country disclose some interesting facts with regard to the possibilities of selling foreign merchandise here. While it is only natural that comparatively little of a novel character has been discovered in markets abroad, yet certain lines have been brought in and are to be brought in which because of their individuality will make a place for themselves in the opinion of the domestic buyer.

It is evident that the old effort to pass off domestic goods as foreign is still being encouraged by certain factors who, not having had success in their purchases abroad, are yet trying to camouflage their efforts by the well worn game of using the imported fetish as a bait to buyers. The author gives illustrations of fabric lines that have come in from abroad to which it would be well for domestic manufacturers to give consideration in view of possible future competition.

BUYERS who have made foreign trips during the past few months have many and various tales to tell. Some have confined their search for goods to England, others have visited all possible Continental sources of supply, while still others have included Ireland in their itinerary.

The diversity of opinion as regards foreign production, and the possibility of getting foreign goods when coolly analyzed simmers down to the outlook of two classes of buyers. One class is composed of those men who went over looking for textiles which they could sell again; the others the buyers who were looking for goods intended for their own use. This latter class includes buyers for the garment manufacturers as well as those for the prominent retailers.

By and large there were many raw recruits in this army of foreign buyers, men who never had been on the other side before, and many of them men who spoke nothing but their native tongue. Also, they were, many of them, men who had not only no foreign experience, but no foreign connection. Therefore, their statements whether enthusiastic or the reverse have to be taken with a very considerable portion of salt.

On the one hand there are a lot of Baron Munchausens among this army of returned buyers, while on the other hand there are the veterans who for a lifetime have had good and close relations with foreign manufacturers and their representatives in this country. It is the latter whose travellers' tales are worth listening to and worth recounting.

Production of Foreign Markets

The concensus of opinion among such veteran buyers is that England is producing from 33 to 50 per cent. of her pre-war output in cotton goods and woolen and worsted goods, while France is producing not more than 33 per cent, but that each country is recovering more rapidly than seemed possible to the most optimistic. The greater admiration is evinced for France, largely because of the more disastrous conditions which prevailed at the signing of the armistice.

Lack of Novelties Criticized

The fact of the matter seems to be that buyers of whatever class are ready and willing to take foreign goods provided they contain some element of novelty. They are particularly keen for novelties in woolen and worsted goods, and to a lesser extent for cotton novelties. The veteran buyer seems to be of the opinion that the domestic manufacturer of woolen and worsted dress goods has not been as great a producer of novelty goods as he might have been in the recent past. To offset this opinion it can be emphatically stated that the veteran buyer is not as conversant with the domestic market as he might be. This would seem to be quite as much if not more the fault of certain domestic manufacturers than it is of the buyer. To be sure, the domestic production of novelties is limited, but that is just what most buyers like about novelties. But the buyer has not the time, nor possibly the inclination, to comb the market for the makers of novelty goods.

Strange to say the salesmen seem to think they have done their duty by the producers when they sell practically the entire production to the garment manufacturing trade, despite the fact that novelties are a vital necessity to the retail dress goods department.

The converter of novelty cotton goods, and the manufacturer of silk novelties always takes into consideration the necessities and requirements of the retail buyer when making his plans for a future season, and therein lies a considerable part of their tremendous success in the past five years. The evidences of this statement were to be found in the retail displays of novelty silk fabrics and garments made therefrom directly after the holidays. Such displays were made not alone along Fifth Avenue, State and Washington Streets, but along the Main Street of many a town of lesser population.

So long as domestic manufacturers of woolen and worsted goods are content to let their farbrics seep through to the leading retail buyer so long will they be up against the imported fetish. The American manufacturer of silks no longer fears the competition of foreigners. He has made his goods known to the American woman as well as to the retail buyer. To a lesser extent the same condition reigns in the cotton dress goods market.

Domestic Sold as Foreign

This brings to mind the stories told by jobbers of dress goods returned from foreign markets. If some of their tales are to be believed they found very satisfactory quantities of merchandise available, particularly in England. Statements to that effect were freely made in November, but verification was not possible, "because the goods have not yet been received." Well, if goods are not on view in one place they may be seen in another, particularly if that other happens to be the place of business of a customer. Such inspection shows that there are jobbers, supposedly reputable, who are not opposed to masquerading domestic woolens and worsteds as imported and thereby making a considerable extra profit.

For the English market is not replete with goods, and even though the English Government may have advised that American customers be favored, veteran buyers state that it is difficult to pick up anything desirable in the English market for nearby delivery. "A piece here, a piece there, that is all the English market affords," said a prominent buyer who has just returned. "The English are showing neither novelty in dress goods or cotton goods in my opinion. We bought very little there. A few things we found in Paris, just as we had bought a certain line of French novelty cottons for January showing. They are things we must have in case customers call for them, because of the publicity certain fashion journals give them."

Agents of English and French lines of woolens and worsteds state that they will receive limited quantities of merchandise in time for the fall buying season. These are firms which have for years been importers. Such goods or samples thereof are due during the first months of the year, and the tendency with these firms seems to be to sell from stock or for nearby delivery. Some English goods have been coming in right along, but nothing like 1913 quantities, and it is not considered by such firms that there will be any great development of supply from English sources for some time to come. English goods seem to be no lower in price than domestic goods of the same quality. But there are English novelty goods being sold in this market of a quality which the domestic manufacturer claims he cannot sell. Be it added, they are being sold to the garment manufacturers and not to the retailers. One such cloth is a cotton warp fancy stripe polo cloth at $6.50 a yard, at which figure the supply was soon sold out. English hopsacking at $4 a yard must compete with a limited supply of domestic hopsacking at $2.50. The English supply is open to all buyers, while the American hopsacking has been sold only to garment manufacturers. 'Nough said.

A supply of novelty plaids from Alsace is expected by the end of January by a house which has for years handled this account. The representative of this firm went abroad recently to renew connections in France severed by the war. "We are not seeking to renew our relations with the German mills we used to represent," said a member of the firm, "and I very much doubt if we shall do so."

This is a frame of mind which seems at the present time to be prevalent, not only in firms of distinctly American origin, but equally with those German born and of German descent. The representative of one of the finest German mills recently said, "Yes, I have a German name, but I was born in the United States, and I have made no effort to renew my German connection, and I do not now contemplate making any such effort."

Demand for the Best

In the first months of 1919 samples of tricotine and similar domestic cloths to sell slightly under the $4 mark were sent to Berlin and Vienna by a man who used to represent a well known German organization, with a view to supplying those markets. The reply came back that such fabrics were not sufficiently good, that the demand in those capitals was for the finest and best made. It may have been that this was a bit of camouflage on the part of the German manufacturers to find out what progress and improvements had been made by American mills.

Be that as it may, American buyers of Austrian broadcloths deplore the fact that they are unable to obtain such merchandise at the present time, stating that it is the best broadcloth made. The American manufacturer consoles himself when such remark is repeated to him, in the fact that it is probably the price which counts with the buyers, "and the present tariff," etc., etc., winding up with the query "Can you get me a sample of Austrian boardcloth? I would like to compare it with ours." A sample of Austrian broadcloth, and it is more than four years since any has been received in this market! Why had he not made the comparison five years ago? For it is not five years ago, nor ten years ago that Austrian broadcloth made its reputation in this market. It was as much a favorite under the Payne-Aldrich tariff as under the present one.

While former representatives of German woolen and worsted mills in this country seem reluctant to renew relations orders have already been placed for cotton goods and linens. Some buyers there are who would like to get such goods, but do not see the way clear. Those who have already placed orders state that their orders have been cut down about one-third.

Fabrics from Germany

It seems that Germany has a considerable amount of Russian flax. How she got it, or when she got it may be a matter of conjecture. The fact remains that she has it, and is taking orders on both dress and household linens at a time when French and Belgian manufacturers are still in the throes of reorganization, while Ireland and Scotland are using as much if not more cotton than linen on the looms of Belfast and Glasgow. So scarce is the flax supply in Ireland that a few buyers who are well versed in the situation have already placed their orders for household linens for 1921.

Some wholesale linen importers are inclined to criticise certain retail departments for selling their present supply of household linens at the prices they have marked them for the January sales. That these retail departments do so, should be clear evidence to the public that they are not profiteers. Of course, not all the merchandise shown in those departments are special values, only the goods which were bought before the present scarcity prevailed, and which have been held in bonded warehouses for just such an oc-

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Future Foreign Trade in Textiles

Important Details Which Must Be Observed If Expansion Is to Be Expected

By *Ernest L. Little**

The comprehensive review by Mr. Little in the accompanying article of the main essentials to be followed by those who are interested in the development of foreign trade does not aim to be essentially technical, but does give in a free-hand way the high spots that should be touched upon in the consideration of future business abroad in American textiles. The opportunity that is presented to the American manufacturer and merchant of expanding his business abroad is clearly demonstrated by the conditions that have forced buyers to come to this market. It is pointed out, however, that these opportunities are not necessarily to continue indefinitely if they are not properly and intelligently fostered, for American producers are destined to meet the competition of foreign manufacturers whose export outlets have been blocked for the time being, but who, upon the return of normal conditions, will fight desperately to regain their former prestige as world traders.

Therefore, as the author points out, it is necessary to give careful attention to the best methods that have been evolved by those who have been in the game for generations. The neglect of details, seemingly minor in importance, may bring about an inability to stand up against a rejuvenated competition and a trade that gives promise of development and great ultimate profits may very easily dwindle into pre-war insignificance.

The matter of packing, catalogues, knowledge of shipping routes and even of climatic conditions in various markets all have their influence upon the possible success or non-success of domestic merchandise abroad. The value of high class representation, securing of proper agencies, preparation of descriptive literature and the registration of trade marks are other factors which are declared to have a fundamental influence upon export trade.

IN the life of industrial nations there are three well defined stages of progress. The first is that period in which industry begins to develop, while the country's most important activity is still the development of raw materials; the second, that period in which industry has gained a foothold and made the nation self-sufficient in the matter of manufactures; and the third, the stage in which industry has been carried to such a degree that it not only supplies domestic needs, but produces a surplus to meet some part of the requirements of other nations. The past years have been for the textile industry of this country a transition period between these last two stages and the total production of our textile industry under normal conditions will far exceed the demands of domestic consumption.

The importance of foreign trade as an outlet for our surplus production is not generally recognized. The light in which this subject must be considered is not that of selfish profit, but of national necessity, not forgetting, of course, that the manufacturer is entitled to realize a reasonable return in whatever business policy he follows. Since foreign trade is vital to our national welfare, no manufacturer can justify himself in neglecting to do his share by pleading that domestic business is more satisfying and more profitable. He might as well plead that neglect of his employes' welfare or a fine carelessness in business honor is a right policy as long as it swells the surplus item in his statement, providing no statute intervenes to stay him in his course.

An Unusual Opportunity

The opportunity to enter foreign markets which has been presented to the American manufacturer during the past few years will perhaps never again be repeated. An analysis of the pre-war statistics of many foreign countries discloses the fact that the larger per cent. of imported textiles was purchased from the European countries. Venezuela is a concrete illustration of this particular situation. During pre-war years Venezuela imported over $4,000,000 worth of textiles annually, and of this amount the United Kingdom furnished about two-thirds, while the amount from the United States was less than one-tenth of the total. The war, however, created an economic advantage for the American manufacturer, and the Venezuelan importer, failing to secure his requirements from European countries, turned to the American exporter for all classes of textiles.

The situation as illustrated by this example is similar to that in many other countries, and the American manufacturer, realizing the opportunity to merchandise textiles in foreign countries, has made every effort to meet the demands of world trade. It remains to be seen whether the American exporter will continue to retain this trade when foreign countries are in a position again to take part in international commerce. In order to meet this competition every effort should be made not only to merchandise the class of goods that meets the requirements of the foreign buyer, but also to follow the marketing methods that are necessary to introduce foreign textiles successfully.

The European textile industry is rapidly being restored to pre-war production, and recent reports from England, France and Belgium clearly indicate that these countries will soon be able to enter foreign markets in competition with American manufacturers. It is therefore essential that the textile manufacturers of this country who have not taken advantage of the opportunity afforded by the war to establish connections in foreign markets should take immediate steps to enter foreign trade. Likewise, the manufacturer who has been exporting during the past years should not only make unusual efforts to maintain satisfactory relations with foreign purchasers, but also prepare to meet strong foreign competition.

Evolution of Distribution

In the early days of economic life, merchandizing was organized on the basis of barter, both traders inspecting and taking over the actual goods before the transaction was completed. Early foreign trade adventurers, sailing from New England ports with a cargo of lumber and Colonial products, exchanged these goods for molasses and other products of the West Indies.

This was distribution in its most simple phase, but the problems of merchandising of today are more complex. In approaching the problems of the distribution of textiles in foreign markets the American exporter must not only be prepared to sell his products at a price that will compare favorably with his competitors, but also to follow with exact compliance the merchandising methods of each different country.

The methods of marketing American textiles in foreign countries, depend upon the individual merchandising policy of the exporter and the conditions and demands of each foreign market. The chief reason for the failure of the American exporter to compete successfully with European exporters during pre-war years, was due to the disregard of these principles. It is a well known fact that many English textile manufacturers have designed their merchandise and have devoted the entire production of many of their factories, to meet the special styles required for a particular foreign market. Not until American manufacturers generally realize the importance of these general principles, will textiles manufactured in this country be favorably received by foreign buyers. There are, however, many American exporters who have endeavored to follow these principles and in return they have enjoyed the benefits resulting from satisfied foreign connections.

American Terms Criticized

One general criticism which has been made by the foreign importer is the terms of payment exacted by the American exporter. An analysis of the extension of credit of our competitors reveals the fact that they are more liberal in this regard. While there cannot be any general rule for standard terms of credit, since each individual case must be decided upon the financial standing and responsibility of the foreign purchaser, it is interesting to note the terms allowed by some of our foreign competitors before the war. The customary length of German drafts on over-sea countries was as follows:

South America: 3, 4, 6, 9 months, most frequently 3 and 6 months.

Central America and the West Indies: 4, 6 and 9 months.

Australia: 30, 60, 90 and 120 days.

China and Japan: most frequently 3 months, also 2, 4 and 6 months.

Dutch East Indies and Straits Settlements: 30, 60, 90 and 120 days up to 6 months.

British India: 30, 60, 90 and 120 days.

South Africa: 60, 90 and 120 days up to 6 months.

West Africa and East Africa: 30, 60, 90 and 120 days.

Northern Africa and Asia Minor: 4 to 9 months.

Even while it has been admitted by many leading trade authorities that the length of credit extension granted by German exporters does not always conform with the basic principles of foreign merchandising, the success of Germany in foreign trade has been generally recognized.

The extension of credit should always depend upon the financial standing and moral responsibility of the foreign importer and a complete credit investigation should be made before shipment. If the results of the investigation indicate that the subject is worthy of credit, a careful study of the trade procedure of the country of destination is necessary. An analysis of the credit situation in Brazil indicates that the usual terms are on the basis of 60 to 120 days sight draft. The primary consideration of Brazilian houses in asking for credit is the length of time necessary to inspect and clear the goods from the Custom House which frequently requires from 30 to 60 days after the arrival of the goods in Brazil. Unless credit for this period is allowed, it will be found difficult to build up export trade on any other basis.

Effect of Exchange Rates

The European exchanges have all made new low records during the past month and some of the leading financiers of this country predict still lower rates. This, of course, has had its effect on our export trade to those countries and many plans have been suggested by foreign purchasers to overcome the low rates. One plan which is quite general, has been suggested by which the selling price should be based on the normal exchange rate, the foreign purchaser depositing this amount in a foreign bank on an interest drawing basis. When the exchange situation has improved, the balance could then be transferred to this country. It can readily be seen that this plan would involve the extension of credit in large amounts before the funds would become available for use in this country. Whatever plan is followed to overcome the unfavorable exchange situation, the exporter of textiles should make every effort to adjust his finances so that it will be possible to extend credit for a longer period if necessary, in order to enter the markets of southern European countries where there is a large demand for textiles. Last month the Edge Bill became a law. While it is too soon to estimate its value as a means of assisting exporters in financing shipments to foreign countries, there will doubtless be some action as the resources of the War Finance Corporation can be used.

Importance of Packing

Another factor of considerable importance in export trade, is packing, and perhaps this subject has caused more complaint on the part of foreign importers than any other. In many cases the criticism has been justified, but the American exporter has made rapid progress in his packing methods. The condition which has existed has been largely due to false economy exer-

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* Of the National City Bank.

Yarn Exports to Argentine and Their Future

American Methods Criticised, Especially in the Matter of Packing and Lack of Uniformity

By *F. E. Hagemeyer**

One of the principal criticisms of exports from America has been the inattention which sellers have paid to the matter of packing and to other details which are necessary to be carefully followed if the merchandise is to meet the requirements of local buyers. The manner in which American goods reach their foreign destination has been the subject of general criticism and many have been the suggestions as to the improvements which should be made in order to compete successfully with goods from other countries. Not only has the foreign buyer complained of the way in which goods arrive, but he has had basis for criticism as to the lack of carefulness displayed in following samples. In some cases it is evident that this failure has been due to carelessness, but in others the reputation of American manufacturers has been injured by the evident disposition of domestic producers to send abroad as cheaper quality than that originally ordered by the foreigner in the hope that, because of his need of merchandise he would accept almost anything that was sent him.

The accompanying article is the testimony of an eye witness who has made a thorough examination of conditions obtaining in the South American trade with particular reference to cotton yarns. While admitting that much of the criticism is just, nevertheless the statement is made that there has been considerable exaggeration in connection with complaints received. The inexcusable feature as the author sees it of deriliction on the part of which they differ from English and German exporters who are careful to American manufacturers is their unwillingness to listen to complainst, in comply with the slightest suggestions that are made by their foreign customers. The desirability of following the example of other nations who have developed a permanent export trade is urged if American manufacturers expect to develop a lasting export relationship.

"THE commercial supplement of the *Times* publishes an article criticising North American exports to Argentina in the matter of quality, packing, etc., and stating that it should be relatively easy for British manufacturers to recover much of the ground lost during the war."

The above article was printed, last September, in an English newspaper published in Buenos Aires, and would seem to evidence a conviction on the part of the author that the manufacturers of the U. S. A. have not the ability to compete in the markets of the world with their British cousins. Is it a challenge to the American manufacturer to do his worst or rather his best?

During a journey through various South American countries, extending over a period of six months, the same opinion or conviction was expressed to the writer by many business men and proofs are not wanting, unfortunately they are only too numerous, that good grounds exist for such convictions.

The Briton, like the American, is only human and it is natural that he should consider with some apprehension the entrance en masse of the American exporter, manufacturer, banker and promoter, into fields where, before the war, he was the dominating factor.

Trade for All

I have discussed the matter frankly with many Englishmen, and have met with but few signs of hostility towards Americans. On the contrary, the feeling seems to be that there is trade enough for all and that each nation will eventually secure that share to which it is entitled by its ability or situation, with respect to raw products, conditions of labor, etc. Keen competition there will undoubtedly be, but there is no reason to believe that the two countries cannot compete for foreign trade in the same spirit that the manufacturers of any one country compete with one another and the race will be to the swiftest.

I could present many illustrations of the unsatisfactory manner in which American goods have been manufactured and shipped to South American countries; illustrations covering a very varied assortment of merchandise, but I shall in this article confine my remarks to the subject of cotton yarn to which article I gave special attention during my journey.

* President Hagemeyer Trading Corp.

Complaints About Yarn

First, as to quality of yarn shipped from the U. S. A., I heard numerous complaints and satisfied myself from personal inspection that they were, in many instances, only too well founded upon facts, apparent to even a layman.

The American spinner may, in some instances, plead war conditions as an extenuating circumstance and there are a few who have gained an enviable reputation by their shipments, but as always occurs in such instances, little is heard of the good shipments and a great deal is said of the poor shipments with the result that American merchandise is damned in general and the good suffer equally with the bad.

But after all allowances have been made, if we are honest with ourselves we must admit that the purchaser abroad of American merchandise has good cause for complaint and that the careless methods of our manufacturers, not to use a stronger expression, have done much harm to American export business.

In one city alone, I was informed that upwards of one-half a million pounds of yarn of very inferior quality had been rejected by buyers.

Poor Quality Received

To refer to an instance which came under my observation, a large consumer of duck yarn invited me to his factory to examine shipments recently received from the U. S. A. and in my presence opened several bales. The yarn was very streaky and badly tinged, although bought as first-class quality and paid for as such. There were many skeins which showed three different shades, a chalky white, a cream color and another shade between the two. Naturally the buyer made a claim and received an allowance in more than one instance of over 10c per pound. I was informed by different buyers that shipments received of this poor quality totalled over 400,000 lbs. The consumer remarked to me that, admitting that the New York firm who shipped the goods was not aware of the contents of the bales, yet it was certain that the spinners who packed the yarn knew the quality and he considered it a very reprehensible proceeding on his part to attempt to impose such yarn on a good customer. Furthermore, in the lot referred to, there were skeins to be found consisting partly of 12/3 and partly of 12/2 yarn, that is, in one and the same skein, the yarn was part two ply and part three ply. Comment upon such delivery would be superfluous.

In other yarns examined, there was considerable foreign matter, specks showing that the yarn had not been properly cleaned. One manufacturer of hosiery complained very bitterly that he had purchased a quantity of yarn, specifying soft twist and had received a hard twisted yarn which it was almost impossible to use.

There were two grounds of complaint, almost universal with respect to ply yarns. One was the twist. They admit that a certain latitude in this respect is permissible, but if they stipulate 12 turns per inch, they expect the yarn to vary not more than one turn and strongly object to receiving yarn with 10 turns or nine turns as has not infrequently happened.

The other complaint referred to, is that the yarn is frequently spun too much on the coarse side, so that on an order for a 12/3 yarn, for instance, an 11/3 is received. One manufacturer informed me that it was his custom in ordering yarn, to stipulate a finer number than he wanted in the expectation of receiving what he actually required.

Overlook Complaints

The American spinner is too much inclined to overlook these complaints, believing that the buyer abroad is over particular, but the buyer abroad knows what he wants, and also knows that in normal times he can get what he wants in England or Belgium or Italy or some other country, and he will be only too glad to abandon the American manufacturer and return to his old sources of supply as soon as these are available. If the American spinners wish to hold the foreign trade, it behooves them to wake up and make a careful study of

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COMPARISON OF AMERICAN AND ENGLISH YARN BALES

NOTE DIFFERENCE BETWEEN PACKING OF AMERICAN AND ENGLISH BALES

International Trade Presents Varied Problems

Necessity of Improving Domestic Conditions in Order to Solve Foreign Difficulties

By *G. A. O'Reilly*

Foreign Trade Representative, Irving National Bank, New York

AS everybody knows, the foreign trade case is bad just now, and the worst of it is that it is difficult to find in it anything which suggests an early improvement. Indeed, the general impression seems to be that things in this field will be worse before they are better. The signs seem pretty badly mixed. The way out is not at all clear. Foreign exchanges are impossible, or practically so, from a foreign trade point of view. There are those who pin their faith on the discovery or development of some special expedient which will cure the exchange difficulty. Recently, however, this theory has been abandoned by some of our best exchange authorities. Was it not Mr. Vanderlip who said, some time ago, that "it is easy enough to raise the mercury in a thermometer by holding a lighted candle under the bulb, but the temperature of the room is not materially changed thereby," or something to that effect?

Wrong Conditions General

This strikes me as applying perfectly to the foreign exchange situation. World business is wrong; balances of trade are wrong; the ratio between production and consumption is wrong; the ratio between luxuries and essentials bought is wrong; world distribution of merchandise and raw material is wrong; international politics are terribly wrong; national psychologies are wrong; money distribution throughout the world is wrong—all of these things are fundamental in the case, and all of them, more or less, out of joint with the theory of normal world trading and normal exchange values.

Of course, the answer to it all is that these things must be put right again, which is by no means as easy as it sounds. It need not be difficult, however, to make a start in the right direction. Spending like a "drunken sailor" meant something unusual and even spectacular a few years ago. Now it would mean almost nothing. The "drunken sailor," with all his disposition to paint things, was rather colorless and economical compared with many of our consistent and sober members of society who are engaged in their present orgy of reckless buying.

Economy seems a thing of the past. A visit to almost any retail establishment in which luxuries are sold will be conclusive upon this point. Not only do people buy things which are expensive and not only do they buy on too large a scale, but merchants tell us that purchasers, many of them, and not the hatefully rich either, are looking not particularly for high-class goods but rather for those which are high-priced. Can we hope for a return to anything like normal conditions as long as any considerable percentage of our people show this foolish disregard for values?

Low production is another detail of difficulty in the international business situation. Unit efficiency is away down. The more violent aspects of the labor squabble seem to be yielding to treatment, but still production lags. Consumption still appears to be outrunning production. Salesmanship is almost a lost art, the essence of selling apparently consisting in being able to get something to sell. The great strikes which have been attempted recently have failed, but the spirit back of them still is rampant. Nobody seems to have been convinced of anything concerning the real points at issue. It may be that one of the parties has developed a new idea or so as to the difficulty of getting away with certain things, but the issue still seems to be in the air.

Evidences of Prosperity

These facts are serious ones and naturally may be expected to bear importantly and unfavorably upon the foreign trade of the country. When and in what form the turn for the worse, which most people anticipate, will come is the "joker" in the situation. But the most astonishing feature of the entire case is that through it all and with these elements which logically would interfere seriously with the machinery of trade and finance, the country is immensely prosperous. It must not be inferred from this that the prosperity will continue, and that it is safely and normally based, or that it should play a controlling part in plans for the future, but the plain facts of the case when put together do spell extraordinary immediate prosperity at least.

Here are some of the details which support this conclusion. The Annual Report of the Comptroller of the Currency shows that in the middle of November 8,000 national banks, the largest number the country ever possessed, had resources aggregating $22,444,922,000, the largest in the country's history; and 18,240,300 depositors, also the largest number in history. Going still further into superlatives, we come to the largest gross earnings in history, about $1,000,000,000, and the largest net also, not far from $300,000,000. Both of these figures refer to national banks. We probably can get a better idea of this situation if we say that the national bank growth in six years, that is, from 1913 to 1919, was greater than in the fifty years preceding.

Stock market sales for 1919 were more than double those of 1918 and even exceeded those of 1916. Bond sales were 80 per cent. above the best. Municipal bond issues rose 50 per cent. above 1916, the highest previous record. New securities were more than double those of 1918, and new in corporations were more than three times those of 1901, the year the U. S. Steel Corporation was floated. Bank clearings were one-fourth larger than ever before; and bank capital, surplus, loans and deposits broke all previous records. Business failures were the lowest recorded in thirty-eight years. Liabilities were the lowest in seventeen years, and the proportion of those failing to those in business was almost one-third of one per cent., or less than one-third of the average for thirty-eight years.

Attempts at Solution

So there you are. You can take your choice—which is it to be, pessimism or optimism? Realization of the things we did in the war makes it difficult to be really pessimistic, but the sort of optimism which would assume that our success must continue regardless, would have but small place in the face of the difficulties we cannot fail to see. Of course, we might suggest caution; that is always sound and always popular. It is not difficult ordinarily to play safe if we are willing to accept the limitations of safety. But here we come to the fact that we are Americans, with a few pronounced characteristics of our own, which characteristics will make it difficult for us to tip-toe through this or any other situation which may confront us.

So that whether we may feel disposed to solve these problems or not, the chances are all in favor of a very serious attempt towards their solution. If we were some other kind of a people we might be perfectly satisfied with a pleasant success such as ours and, after that, play safe. But again, we are Americans and because of that fact we are almost certain to go in and through in our characteristic American way.

True, we appear to have been slow in getting things started. A little while back we were all talking about Reconstruction, the things we should do and were going to do in the solving of our own trade problem and the trade problem of the world, with particular reference to the war-stricken countries of Europe. But nothing has come of it, with the possible exception of a fuller knowledge concerning the difficulties of the situation. The actual work of Reconstruction has not yet started. The difficulties, those we anticipated in the beginning after the war, are still there confronting us, awaiting treatment. And we do not seem to have the solution ready.

Must Reach Lower Level

We are still running on the "high" of war—high prices, high wages, high profits, high expenditures, high everything else. There is so much of what looks like great prosperity going on all around us that in spite of the fact that the ratio between our personal income and expenditures is not more favorable than in former times, we sort of feel that we, personally, are exceedingly prosperous and let it, more or less, go at that. We all realize that running on this high level of war cannot go on indefinitely. There is another and lower level which we must reach before business and finance will be surrounded by that margin of safety which normal prosperity demands. But who will make the first move towards that lower level? There must be a downward trend at some point, but is it not a fact that most of us seem disposed to close our eyes when we approach such a possible point and step over it or around it, and continue on as we are going?

There are a few tendencies, however, which, while not at all violent, are sufficiently definite to attract some attention. For instance, there come to us evidences of a growing sentiment in different parts of this country in favor of maintaining the present price structures; that is, to aid in checking the tendency towards higher prices unless the increase is justified on economic grounds. It is being realized that a continuous increase in prices will mean an increase in labor cost which eventually must bring business reaction.

Foreign Exchange Difficulty

Another tendency which is asserting itself, mildly but still unmistakably, concerns our balance of trade and the foreign exchange situation. There is a disposition to stress the feature of import instead of that of export. This, of course, is entirely sound, and if carried to a proper point must have a salutary effect upon the international exchange situation. It is possible, too, that this tendency developed would operate favorably upon our cost of living. through the rendering available for domestic distribution of quantities of goods which, under other conditions, would be exported.

In it all, one thing seems rather clear. Time will be required before these problems can be solved. The foreign exchange difficulty will not yield to the special expedient, neither will the high cost of living. The same is true of the condition of inflation which is current in such a large portion of our values. Production must be stimulated—that will take time, because it means a long process of education of laborers and employers as well. Waste must be eliminated—that will take time. The swing toward extravagance which has come to us since the war cannot be checked suddenly, and in this, as in production, the process of education must be gone through with. A redistribution of commodities throughout the world must take place, and this will take time because it involves world transportation and international exchanges, and the development of new facilities and, most of all, perhaps, a readjustment of world politics.

Hopes from Edge Bill

Among the special expedients from which much is expected in the solving of our foreign trade problem is the Edge Bill. It is nearly certain that too much is expected of it, but still it will help. It will provide machinery which seems indispensable in the work of absorbing the foreign securities which so frequently are referred to as fundamental in this work of financing the requirements of Europe. The machinery to be provided will be good machinery, too. Expert comment upon the Edge idea thus far has been favorable. But is there any kind of machinery, however efficient, that will cover this foreign security case? Will our people buy these securities? Will they make this investment in foreign values in the face of the unusual investment attractions presented by the domestic field? Will they be able to earn and save enough to invest in these securities, even if so disposed, upon any scale which will materially affect the situation?

Patriotism Not Rampant

The sale of Liberty Bonds during the war was not nearly so easy as it may have appeared to those who were not on the inside. We had every kind of machinery which could be imagined and still the results more nearly expressed the patriotism of our American people than they did the efficiency of machinery—banks, business organizations, scientific bodies and those of a civic nature which pulled together so splendidly in co-operation with Government.

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Textile Property Values and Federal Taxes

Readjustment of Invested Capital and Plant Values —Solution Is in Combination of Audit and Appraisal

By *Lester G. Hawkins**

It has always been considered "good business" by textile mill financiers to prepare during prosperous periods for possible "lean years" that might follow. The common methods of accomplishing this object were charging off as current expense expenditures for new machinery and equipment, or by writing off excessive amounts as depreciation from the equipment correctly capitalized. Corporations that have followed this policy for a long period of years have accumulated very large "hidden profits." Between such organizations and modern plants, of the same spindleage and producing the same character of goods, there is naturally a wide variation in net plant book values. A few years ago veteran mill treasurers were smugly complacent over their strong financial positions and were the envy of treasurers of more modern mills. Today, the latter are the smugly complacent ones, while the veteran financiers are hustling around to find methods of convincing the Federal Treasury Department officials of the actual net worth of their plants. From an investment standpoint they are no less anxious to have the actual facts known.

The basis of computing Federal taxes is found in the ratio of earnings to capital invested. The basis of investment value, and also of borrowing capacity, are largely a matter of earnings plus the net assets of a corporation, both quick and fixed. For each purpose there is an equal incentive today to render visible the so-called "hidden assets" that have been charged off during a long period of years as current expense and excessive depreciation. For tax purposes the Federal Treasury Department naturally holds that a corporation's books must show the facts, and that, if its capital or surplus accounts are understated, the burden of proof rests upon the corporation. It is the purpose of this article to show how, by expert audit adjustment and plant appraisal, thea ctual hidden assets may be disclosed. Such procedure is quite as valuable in demonstrating the real investment value of a property, and in improving the corporation's borrowing capacity.

It may not be out of place in this connection to draw attention to the fact that, while the Treasury Department has adopted a liberal attitude toward the reinstatement of hidden invested values, its attitude towards the taxation of stock dividends is both illiberal and illogical. Of course, the Treasury Department officials will reply that this is a matter for the courts to decide and that they are not responsible for the failure of the latter to render a decision promptly. The Treasury Department, however, was responsible for the original ruling declaring stock dividends a distribution of profits. The business world continues to await patiently the decision of the U. S. Supreme Court on the appeal from this ruling. Meanwhile, there are hundreds of corporations that have been allowed by the Treasury Department to readjust their invested capital for tax purposes, that are still unable to capitalize these assets without being mulcted for excessive super taxes.

GENERALLY speaking, the more intricate features of the regulations of the Treasury Department in the matter of Federal taxes have gradually become workable in connection with individual cases, and the majority of textile executives, after having given the subject a rather exhaustive study and submitting their returns in accordance with what they believed to be the logical interpretation of these regulations, have felt that they might consider the entire Federal tax problem as solved.

In a great many cases, however, it has been shown that revised returns for 1917 and 1918 were necessary, due to the fact that certain points of procedure regarding the relation of plant values to tax returns have been definitely established since original returns were submitted, which heretofore were not clear and in regard to which a great diversity of opinion existed among professional advisers in this field.

The subject of plant values becomes an important one where the matter of Federal tax returns is concerned, since the basis of computing Federal taxes is found in the ratio of earnings to capital invested. The "invested capital" of a corporation, under ordinary circumstances is a matter easily ascertained.

Variation in Net Plant Book Values

The invested capital and depreciation problems have been especially difficult in the textile industries. A recent review of textile plant book values in a particular center of the industry revealed the fact that twenty-five textile plants, all including in their operations the complete spinning, weaving and finishing functions, had an average net plant book value of approximately eighteen dollars per spindle. The highest in the group was shown upon the books at thirty-two dollars per spindle while the lowest averaged approximately six dollars and fifty cents per spindle.

The explanation of this wide diversity is in the fact that many of the older plants in years past adopted the policy of preparing during prosperous periods for possible "lean" years which might be forthcoming. This was accomplished usually by charging off as current expense expenditures for new machinery and equipment or by writing off excessive amounts as depreciation from the equipment correctly capitalized.

Inconsistent Tax Assessments

The result of this procedure has been an inconsistency in the tax assessed upon the various textile plants. To illustrate a particular case the following figures are given from the tax returns and annual statements of two textile corporations for the year 1918:

	Company A	Company B
Date of Incorporation	1909	1875
Production	Prints, twills, sateens	Prints, twills, sateens
Equipment	54,000 spindles	55,100 spindles
	100 cards	110 cards
	1,420 looms	1,490 looms
	4 boilers	5 boilers
	650 employees	620 employees
Fixed assets (Real Estate and Mchy.) less Res. for Deprec. per books Jan. 1, 1918	$1,230,000.00 ($22.40 per spindle)	$491,500.00 ($8.92 per spindle)
Net Taxable Income for 1918	$270,000.00	$261,500.00
War Profits, Excess Profits and Income Taxes for 1918	105,200.00	164,100.00

A comparison of the above figures shows that these plants are in their size, type of equipment, capacity of production and general characteristics practically identical. Although the plant of Company A was constructed and equipped in 1909, nearly thirty-five years later than Company B, yet it should be noted that practically all of the equipment of Company A was purchased and installed upon the same level of costs as that of Company B, since records are available which demonstrate that the increases in cost of equipment over this period were practically negligible.

In view of these facts it can be seen that the past policy followed by Company B of writing off excessive amounts against the operations of successful years has resulted in a severe penalty under the present regulation of the department being imposed upon them, the net amount of which was $58,900 in the Federal tax for a single year, according to the example shown. This comparison takes into consideration only the exemptions based upon the "invested capital" figures of the respective corporations, in addition to which it should be noted that Company B is further placed under a handicap through the fact that the annual charges against operations for depreciation and obsolescence, based upon the book figures of the two organizations, and assuming an annual weighted average of five per cent. for depreciation, amounts to $61,500.00 in the case of Company A against $24,575.00 in the case of Company B. The net results of this added burden is that Company B is assessed upon a portion of its gross earnings amounting to $36,925.00 which is exempted on the return of Company A.

Regulations Provide Relief

The natural outcome of this situation has been that the textile company whose plant values were obviously understated has endeavored, by process of reinstating these amounts excessively written off, to bring about an equalization of the tax situation. The regulations of the Department have apparently contemplated that a problem of this nature would become evident, and have in fact provided the oportunity for relief in the matter. Briefly, these adjustments are provided for under the two following clauses of the regulations:

1. To reinstate in the surplus account amounts excessively charged heretofore as depreciation on property still owned and in use.

2. To reinstate in the plant accounts, with a corresponding increase in the surplus account, amounts which have been expended before January 1, 1917, for the acquisition of plant, equipment, etc., having a life extending substantially beyond the year in which the expenditure was made, and which have been charged as current expense (less proper deductions for depreciation and obsolescence).

Conditions to Be Complied With

In order to make the adjustments specified, however, there are certain express conditions which must be compiled with. Those under (1) above are:

(a) Satisfactory proof must be shown that such amounts charged off were excessive.

(b) The property involved must be shown to be still owned and in use.

(c) No such amounts may be restored unless it is satisfactorily shown that adequate depreciation has been deduc ed upon all other property of the corporation still in use.

The adjustments under (2) above require:

(a) Satisfactory proof that the items thus charged are still in active use by the corporation.

(b) Proper deductions for depreciation or obsolescence which has accrued upon such items.

In a considerable number of cases, textile companies have endeavored to alleviate the situation by making adjustments of this nature, following one of two methods in so doing, i.e., either through an audit procedure, or by the use of an appraisal.

Difficulties of Audit Adjustment

The audit procedure, that of reviewing the expense accounts of past years and reinstating the items subject to this adjustment, has been adopted in certain instances, and in many cases has not been accepted by the department. The principal objection advanced against this method has been that in reinstating items purchased several years previously, there is no satisfactory evidence available that the items are "still owned and in active use." Another difficulty encountered is that of making "proper deductions for depreciation or obsolescence." While in some cases a deduction based upon cumulative estimated yearly depreciation rates is equitable, yet in other instances machinery has been rebuilt or parts renewed, the expenditure for which would have been a proper charge against the depreciation reserve, consequently the arbitrary deduction by use of yearly rates is not correct.

A further difficulty encountered in the audit adjustment is that experienced by accountants, having no knowledge of the various textile equipment and depreciation rates applying to the different items, and other questions as to what are plant items and what are not.

The use of the ordinary appraisal to substantiate or adjust values is not per-

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* Appraisal Engineer, Cooley & Marvin Co.

Broadened Opportunities for Textile Schools

Must Provide Both Practical and Technical Training—Closer Co-operation of Mill and School Essential

By *Henry W. Nichols, A.B.*, Principal Bradford-Durfee Textile School

Manufacturers in cities where textile schools are located appear to be just awakening to the advantages of these schools, and their proximity, in the development of practical plans by which they may increase and maintain a supply of skilled workers, and make available to promising and worthy young men in the mill that technical knowledge which will more quickly fit them for managerial positions. The attitude of a large number of textile manufacturers toward the textile schools heretofore has been one of tolerance, rather than of cooperation. They have recognized the value of the evening schools to a certain extent, but there has been a very general feeling that the tendency of textile school training, and particularly that of the intensive study in the day courses, has been to educate young men away from the mills, and to instill ambitions that unfitted them for the practical mill experience that is essential if they are to become capable overseers, superintendents and mill executives.

Comparatively few manufacturers have appeared to realize that the things that they held to be faulty in the textile schools, and in the students and graduates of the textile schools, were largely the result of their failure to cooperate with the schools and to capitalize the opportunities that the latter afforded. The acute labor situation during and since the war has served to change the views of some of these manufacturers, and the necessity of developing some method of systematically training skilled workers and young men capable of filling responsible positions in mills has given them a broader view of the possibilities of the schools.

To meet this demand in a practical manner Principal Nichols of the Bradford-Durfee Textile School, in conjunction with several Fall River manufacturers, has developed what is likely to become known as the "Fall River Plan," involving close cooperation between the mills and the schools. One of the most important features of the plan involves the selection by manufacturers of one or more of the brightest young men in the mill for a course at the textile school, during which time they remain on the mill payroll. An equally important feature of the plan is the provision by the school for the training of selected textile operatives in any desired character of skilled work.

In the accompanying article Principal Nichols explains the various features of the plan, and shows how it may be broadened to meet the needs of mills distant from the textile schools.

BROADLY speaking, there are three classes of students which may be attracted to a textile school. First, there is the student who wishes to learn to operate some individual machine met with in textile manufacturing; this student is looking forward to securing work as an operative in some mill where he or she may be able to earn a living. Next, there is the operative in the mill who already has employment in the industry, but who has the ambition to enchance his usefulness to the mill and thus advance his position. Lastly, there is the student who has had the advantage of a better academic education than the students in either of the two previous classes, who has chosen the textile industry as a life work, and who, with or without previous mill experience, seeks to fit himself for an executive position, either in the manufacturing end or some closely allied work.

To the first class, that is, to those students who wish to secure employment in the textile industry and who desire some preliminary instruction in order to apply for semi-skilled work, such as weaving, spinning and so forth, what have the textile schools of this State offered? Practically nothing, and when I make this statement I am making it in a comparative sense. Probably no textile school in the country has, up to the present, gone any further than has the Fall River school in the way of training the man for the job of operating machines, and yet what has been done by this school is as nothing when compared with what is possible along this line.

Lack Co-operation of Mills

The question, then, naturally arises, why is it that more has not been done, and my answer is because the schools have not obtained the co-operation of the mills, which is absolutely necessary to carry on such work with the schools organized as they are at present and as they no doubt will continue to be for some years to come. To illustrate my point I will take the case of a boy or young man who wishes to secure a job as weaver in a mill. He has had no previous mill experience, is anxious to learn as quickly as possible, and naturally wishes to be sufficiently expert, when he applies for a position, to handle a number of looms that will guarantee a fair weekly wage. To such a student the Fall River school, and I am using this school as an illustration, since it offers more to this student than any other school, says we will take you into our evening classes only, and we will teach you how to tie a weaver's knot, how to draw in an end, how to start and stop a loom, in short, how to operate a single loom. Nothing more can be done for this student, since the equipment of the school and the layout of the machinery do not sufficiently approximate mill conditions to warrant the effort of making the student a weaver in the full sense of the term. What has been said with relation to the weaver may also be said with relation to any other strictly operative job.

A School Mill or a Mill Schooling

If these schools are to train men and women for such jobs, and I believe they should, then one of two things must be done: Either the school must build a mill to be run under actual mill conditions and for profit, in which the students may work under the charge of instructors, or the mills must co-operate with the schools and offer to give the student that portion of the required instruction which the schools are not able to give. I believe the latter plan to be by far the preferable one for the textile centers of Massachusetts in which are located the existing schools. Such a plan that would prove extremely beneficial to the industry could very readily be worked out, provided that co-operation, which is a prerequisite, could first be established.

In those cotton manufacturing sections of the country where the industry is more scattered than is the case in Massachusetts, such a plan would be less satisfactory than would that of having the mill under the same management as the school. With this latter arrangement the school is able to give the student actual mill conditions, and consequently perfect him in the line of work he wishes to follow. Such a plan is being worked out at the present time in Spartanburg, S. C., and it may be that the South, which was the last to enter the cotton manufacturing field, as well as the last to take up the subject of textile education, may yet blaze some new trails which we in the North will be obliged to follow.

Coming next to that division which includes the mill operative who is looking to something better than the mere routine of the operative, what is the textile school offering to such men? In this field the school is offering many inducements and performing much useful work. The evening school places within the reach of these men the opportunity of studying machines and processes under men who are recognized experts in their respective fields. It gives them these opportunities in schools where the entire object of the work is to impart information, and where questions and discussions are not only welcomed but invited. At the same time, such students receive the practical part of their training as they perform their daily occupations in the mill with the factory surroundings. Here again, however, this branch of the textile school's work could be immeasurably enhanced if the schools could but have the co-operation of the mills, which the schools so much need, and which could not but serve to greatly benefit the mills.

Every department of a mill should have at least one or two men in training, capable of stepping into a more responsible position. If such men could be encouraged by the second hands and overseers of their departments to follow some course in the evening classes of a textile school, and the work in the school shaped to meet their particular needs, how much more interest the student would take in his studies as well as in his work, also how much of added value would such men be to their employers. Promiscuous advertising of the evening classes of a textile school may serve to swell the enrollment, but how many of these students have a definite comprehension of what they are after, and how many clearly understand the value to them of the different courses offered? How many have a definite object so clearly in view that they will carry on until the work is completed? The examples in all textile schools are many of students who enter upon courses of study in the evening classes which are not fitted for their particular needs, with the inevitable result that they are soon discouraged and drop out, causing considerable dissatisfaction and wasted effort on the part of both the student and the school.

Selection of the Fittest

On the other hand, if the student could be selected by the mill by reason of some particular fitness for the work which he has shown in his daily occupation, and his studies in the school shaped to fit him for this work, while the total enrollment, no doubt, would fail to show the results obtained from considerable advertising, yet I venture to predict that the work of the year would more nearly approach the 100 per cent. efficient mark. I believe the Fall River school to be the only one to have attempted to bring about such a cooperation between the evening school and the mills. Formerly it was our custom to have large posters, announcing the opening of the evening school and the courses offered, placed in the different departments of the mills; evenings were assigned for registration, and those wishing to enter this department of the school applied on those evenings and made out their application blank.

Last spring a representative of the school interviewed the different superintendents and overseers in the city, asking each to express his opinion of selecting from his employes certain ones to whom he felt the evening work of the school would be of particular benefit. The response was so encouraging that it was determined this fall to distribute to the mills registration cards which the overseers would give to the employes selected, together with a printed circular describing the different courses offered by the school in its evening department, and a word as to the wisdom of taking up some particular course of study. The overseer turns these cards in to the superintendent after they have been filled out, and a representative of the school collects them from the superintendents. This is new work with us, but the enrollment in our evening classes this fall, particularly in the purely textile work, fully demonstrates that work very much worth while will result from this closer cooperation between the mill and the school. Not only are these classes filled to capacity, but what is even more pleasing, the men who have come to us directly by means of this co-operation are those to whom the work of the school in the evening classes will prove most worth while. Furthermore, the school will be much better able to shape its work to fit the particular needs of the student, and should for this reason alone, be in a far better position to retain the interest of its students.

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National Commander D'Olier of American Legion

A Textile Man the Industry Is Proud Of—Sketch of His Business and War Career

It is a matter of pride that the textile industry should possess within its ranks one who has been deemed worthy of the highest honor in the American Legion. This body, formed of the World War veterans, is bound to be a force in the future history of the country, but its power for good as a strategic element in national affairs will depend largely upon the character and initiative of those who are its leaders. Those who have been closely identified in a business way with Franklin D'Olier, head of the well known Philadelphia yarn house which bears his name, feel that no mistake has been made in selecting him to head the forces of the Legion. He proved his executive ability, as well as his fitness for leadership in the duties to which he was assigned during the recent war, while his business experience has given him a training that must necessarily stand him in good stead in the performance of equally arduous duties connected with this essentially American institution.

Mr. D'Olier is an essentially modest individual, but this journal feels privileged to add its tribute to the sterling worth of the man who has been unanimously elected as the Legion's national commander and to declare unequivocally its belief in the success of his administration and in the development and growth of the organization under his leadership.

As a powerful influence in the future affairs of these United States the American Legion has been recognized generally as second to none in its potent possibilities. Naturally, the man who heads this new movement, in which the veterans of the World War are banded together, "determined to preserve this great United States of ours for whom these millions of men offered their lives," must needs occupy a prominent position in the life of our nation. In the early and formative days of this newly organized body, not yet fully awake to its powers, the influence of the leader in shaping the future policies of the American Legion is necessarily great. The burden of the heavy responsibilities must rest upon strong shoulders.

For that reason the textile industry may take pride in the fact that one of their own number has been selected to fill this important post. His elevation to the office as the first National Commander of the American Legion has placed him in the forefront before the public, so that today he is, perhaps, the most conspicuous man in the industry by reason of his position before the nation.

Franklin D'Olier, the first National Commander of the American Legion, as head of the cotton yarn house of Franklin D'Olier & Co., Philadelphia, was already well known throughout the industry, especially in the cotton branch of the trade, where his abilities as a business man were recognized. However, it was not until the outbreak of the war, when he answered the call for service, that his talents as an organizer and executive became more widely appreciated.

His Characteristic Modesty

Up to that time his business career had been directed towards the development and growth of the cotton yarn business founded by his father fifty years ago. Franklin D'Olier was born April 28, 1877. He was educated at Princeton University, where he was graduated in 1898. There is a story told of him there which reveals the modesty which has ever characterized him in spite of his achievements. Young D'Olier had rescued a boy from drowning near the college. He had not mentioned this incident to any of his fellows. However, the act had been such a courageous one, involving a high spirit of self-sacrifice, that the president of the institution, who had learned the facts of the case, publicly commended him before the entire college body for his bravery.

Started at Bottom of Business Ladder

Immediately after graduation, he applied himself to learn the cotton yarn business. He started as an office boy at $6.00 a week in the house established by his father, William D'Olier. Not satisfied with merely acquiring a superficial knowledge of cotton yarns and their merchandising, he sought employment in a cotton yarn mill, where he could learn the practical manufacturing processes of the product he was to sell, and secured a position with the Ontario Spinning Co., Philadelphia. Here for over three months he served his apprenticeship, working in the various departments of the mill, handling the raw cotton and finally the various processes of cotton yarn spinning.

It is a favorite story of William T. Westerman, manager of this mill, of how young D'Olier applied himself to his work. There was no shirking the tasks set before him. From 6:30 A. M. he worked diligently until quitting time, paying strict attention to the job. When the three months were up D'Olier was operating a mule and producing some of the best yarn in the mill.

FRANKLIN D'OLIER, NATIONAL COMMANDER AMERICAN LEGION

Following this course of practical mill work he went back to the marketing of the cotton yarns with which he had made himself familiar. In 1902, he was admitted to the firm of William D'Olier & Co., which his father had first established in 1869. When William D'Olier retired from active participation in the business in 1913, he became the head of the firm, the title being changed to Franklin D'Olier & Co.

As the head of this firm he made a name for himself in local business circles. He was elected a member of the Board of Directors of the First National Bank of Philadelphia, becoming the youngest member of the Board. He also had tempting offers to enter other fields of industry, but preferred to remain in the business he had first chosen.

His War Career

When the United States entered the World War, Franklin D'Olier at once offered his services at the Philadelphia Depot of the Quartermaster's Department of the United States Army, where he felt that his training and experience with textiles might be of some service. He was gladly received and a commission as Captain in that department was issued to him.

For a brief period he served at the Philadelphia depot, but when the business at the Boston depot outgrew the original organization and equipment, he was transferred to that post to systematize and adjust matters to meet the new conditions. Men familiar with his work there, speak in terms of highest praise of his achievements. Previous to his coming business moved slowly, and with irritating delays, so that manufacturing contractors were exceedingly dissatisfied with existing conditions, and the work was suffering a serious handicap. Captain D'Olier took charge of this matter, and in a short time everything was moving along smoothly; bills were being paid promptly, despite the fact that the business of the Boston Depot had reached $20,000,000, where heretofore it had been only $300,000 monthly.

Sought Overseas Duty

In spite of his usefulness at this post, Captain D'Olier was anxious to get to the front in France and his energies were directed to securing a transfer to overseas duty. In due time the coveted orders came and in August 1917 he went to France. A story is told of his experience there with a regular army officer who had his own ideas of the worth of civilian officers.

"Ever been a sergeant's clerk?" he asked.

"No sir."

"Ever been a quartermaster?"

"No sir."

"Then go out there in the yard and help move that stuff up to the front."

Orders were orders, and Captain D'Olier obeyed, even going so far as to help push the cars about by hand with the other men.

He did not stay at this job long. The second Liberty Loan campaign came along, and he was filled with the idea that the men in France should have a part in this. He suggested it to his superior officers, and as a consequence was made chairman of the committee in charge of the campaign. He secured a subscription of 100 per cent. and his work in this direction earned for him a personal note of congratulation and commendation from General Pershing.

Promotions and Decorations

His organizing abilities were then made use of in the Salvage Department. First he served at St. Pierre de Court, outside of Tours, where he won the commission of Major by reason of his remarkable record, and was then set to work in organizing an entirely new reclamation plant at Lyons, where he built up a plant which eventually employed 5,000. Millions of dollars are said to have been saved through the systems he established at these plants, so that when the war was ended he was

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Standardized Warehouse Management

Time and Expense Saved by Proper Control System Methods Adapted to Both Old and New Mills

By *Eugene Szepesi*

The modern textile warehouse for the storage of raw materials and finished goods is designed to effect important economies in the time and labor required to handle materials and in storage space. Various forms of fixed conveying devices, of both the gravity and mechanical type, are utilized as far as possible, while mechanical methods of trucking and handling have largely displaced horsepower and manual labor. Without standardized warehouse management and control, however, these modern methods may prove no more economical than the old, and the object of Mr. Szepesi's article is to emphasize this fact and to describe and illustrate effective control systems. They have been developed from actual experience in textile warehouses, and one of the most important features of the article is the demonstration of the fact that, with proper standardization and control, it is often possible to effect almost as radical economies in the handling and storage of goods in old mills as in those equipped with the most up-to-date warehousing system.

THE hauling of raw materials and the handling of the product forms a very important item of expense in a textile plant. Within the last few years the high cost of unskilled labor as well as the shortage of such labor made the standardization of warehouse operation inevitable. The standardization of warehousing operations is the only remedy for high warehouse cost, and during the past year considerable progress was made in this direction throughout the industry. As a result, modern mill construction will provide in the future a mechanical means of material transportation, constructed in such a manner that the movement of materials will be almost automatic, and the highest degree of standardization will be possible. During the past year the plans of one large cotton mill were devised in this manner and make possible revolutionary changes in the layout of cotton mills.

The most important problem is, however, how far mills of the old type of construction are able to adopt automatic devices and standardize the warehousing and hauling operations to reduce the unskilled labor force of the mill.

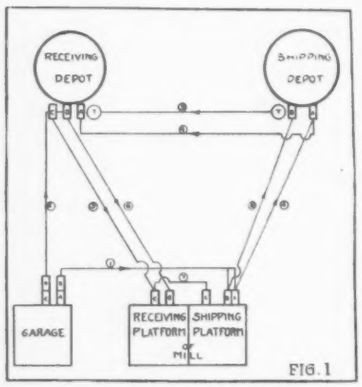


FIG. 1

1. Trailers A and B empty from Garage to Mill Shipping Platform.
2. Trailers C and D empty from Garage to Receiving Depot. Wait for trailer C to be loaded.
3. Trailer C loaded from Receiving Depot to Mill.
4. Trailer A loaded from Mill to Shipping Depot.
5. Truck empty from Shipping Depot to Receiving Depot.
6. Trailer D loaded from Receiving Depot to Mill.
7. Trailer C empty from Receiving Platform to Shipping Platform.
8. Trailer B loaded from Mill to Shipping Depot.
9. Trailer A empty from Shipping Point to Receiving Point.
10. Repeat cycle of 6, 7, 8, 9.

The problem of warehousing is divided into three parts: Transportation to and from warehouses; receiving and shipping at warehouses; the placement of the materials in the warehouses.

The Standardization of Transportation

In mills where warehouses are not provided with railroad siding facilities all materials must be hauled to and from the freight depots, often located at a considerable distance from the plant. In such plants the dispatching of the trucks must be scheduled in such a manner that the warehouse gang is provided with a continuous flow of material for handling. Warehouse gangs under ordinary circumstances are working spasmodically, their work depending upon the arrival of the trucks which, in most instances, is very uncertain, with the result that on account of the uncertainty of the trucks twice as many laborers are engaged as are necessary under standardized conditions. Such conditions and the solution thereof are illustrated by the description of an actual case.

In this instance the delivery of the cotton bales from the depot to the warehouse and of the finished product from the warehouse to the depot was contracted for with a public teamster, representing an annual expense of about $20,000. The mill received on the average one hundred bales of cotton daily and the delivery was so uncertain that half the time the warehouse gang was unoccupied, and yet according to the officials the crew could not be reduced because a certain number of men were essential for handling the bales. It was determined during the investigation that a motor truck and five trailers, each of twenty bales capacity, could easily take care of the transportation of the bales and the shipping of the finished product. The above equipment was calculated to give efficient service even at a fifty per cent. increase of the business, the motor truck to be used only as a locomotive running between the mill and the various shipping points, while the loading and unloading of the trailers is to be done while the truck is engaged in carrying a trailer to some of the respective points of destination. In other words, the truck is to be engaged in continuous cycle trips and the loading and unloading accomplished in the meantime, thus providing the warehouse crew with a continuous flow of work. This solution necessitates the stationing of helpers at the railroad depot to load and unload the trailers while the truck is engaged in delivery.

Such arrangement results in a considerable reduction of the warehouse crew, but it is essential that the work is scheduled in a careful manner to assure a continuous flow of the bales. The schedules and instructions must be prepared in a clear and concise manner, so that they are readily understood by the employes responsible for the delivery. Figure 1 represents a graphic chart prepared for such purpose, showing the order of the trips and the operations for a standardized truck and trailer system of delivery. Such chart is simple and shows clearly how the truck and the trailers are to be dispatched to assure a continuous operation and the maintenance of schedules. The above plan was developed for the standardized and scheduled delivery of materials, resulting in a fifty per cent. reduction of hauling costs.

(*Continued on page* 415)

TRUCK SCHEDULES

Truck 1—Maxwell
2—Packard 3T
3—Packard 4T
4—Pierce Arrow 5T

Grade.	Truck.	Standard Load.	Run to Depot.	Loading.	Run to Mill.	Unloading.	Total Time.	Extra for Boat.	Extra for Boat.
Native Bags	1	..	..	..	..	..	..	..	..
	2	37	30	27	30	3	1.30	20	1.50
	3	37	30	27	30	3	1.30	20	1.50
	4	37	30	27	30	3	1.30	20	1.50
Montevideo	1	..	..	..	..	..	..	..	..
	2	8	30	15	30	3	1.15	20	1.35
	3	8	30	15	30	3	1.15	20	1.35
	4	10	30	17	30	3	1.20	20	1.40
Australian	1	..	..	..	..	..	..	..	..
	2	21	30	17	30	3	1.20	20	1.40
	3	21	30	17	30	3	1.20	20	1.40
	4	30	30	22	30	3	1.25	20	1.45
California	1	..	..	..	..	..	..	..	..
	2	18	30	27	30	3	1.30	20	1.50
	3	18	30	27	30	3	1.30	20	1.50
	4	21	30	27	30	3	1.30	20	1.50
Cape	1	..	..	..	..	..	..	..	..
	2	21	30	17	30	3	1.20	20	1.40
	3	21	30	17	30	3	1.20	20	1.40
	4	30	30	22	30	3	1.25	20	1.40

FIG. 3

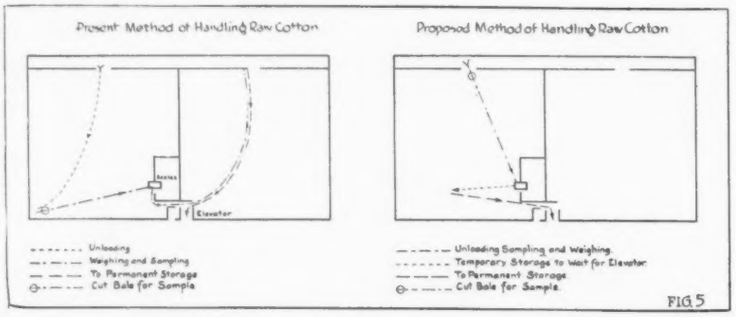


FIG. 5

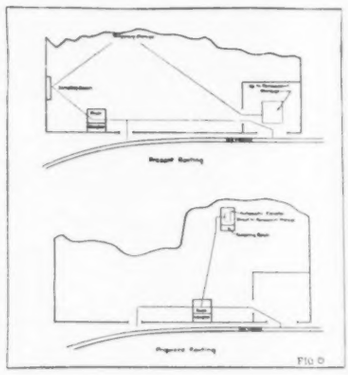


FIG. 2

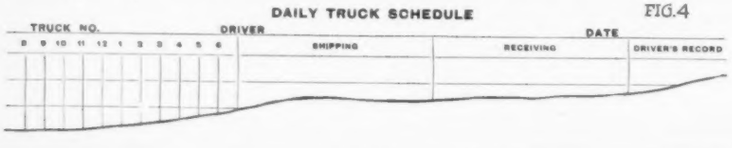
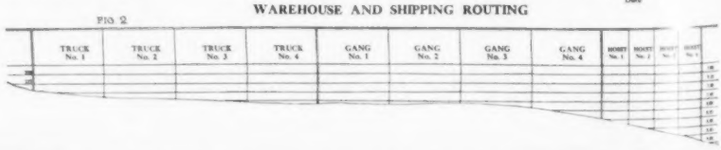


FIG. 4



Cotton Goods Market Breaks Records

The Market Recovered from War Control and Continued Very Strong

A REVIEW of the cotton goods market if only for twelve months, and be it ever so casual, must reveal one innovation after another that has no parallel in the records. The numerous improvements of the old downtown district evidences the extraordinary prosperity of that historical location, with which is associated so many of the great names and prominent concerns intimate in the commercial history of New York. The remodeling and modernizing of buildings that had grown shabby with age is a noticeable improvement, so far as it has gone, and has given an up-to-date air of progress and twentieth century "pep" to that solid old district whose traditions are ancient history in the trade.

The Busy Broker

Brokers' activities, trade factors admit, largely directed the 1919 cotton goods market and made possible the dramatic performances, rapid changes and phenomenal high prices of the year 1919. No similar conditions have heretofore existed from which comparisons can be drawn. Our own Civil War experiences concerned ourselves too closely and the rest of the world less intimately, and financial conditions and the value of currencies were the opposite of what they are today. The American dollar in those greenback days was the football of British exchange and looked like 30 cents when "shin plasters" were called on to do the work of silver or gold coin.

The prompt recovery of the cotton goods market from the slump that followed the armistice and the definite change of front from defensive to offensive is credited, to a considerable extent, to the ever-ready broker and his able assistant, the telephone. The converting trades discussed the market with the broker to a greater extent than they confided in each other or in first hand selling agencies. The broker, with his ear to the ground and his eye on the main chance, encouraged a market that he could handle to his own advantage, a middle ground position for which he was the medium going and coming. The expansion in dry goods brokerage and the increase in speculation are obviously related, the facilities for speculation being furnished ready to hand by the broker's open door. Whether he is to dominate or possibly domineer a division of trade activity crops up in current comment.

Important Innovations

The proprietary interest that commission houses acquired in mills during the year features a change of front in business procedure that has been discussed with interest. It is not altogether a new idea but it definitely reduces to practice a theory that has had many supporters on the score that it is possible for production and distribution to coordinate more closely. The allotment of goods to the buyer became a recognized practice that the buyer accepted as final when he could invent no way to get around it. But it demonstrated more than anything else the gap between supply and demand, intensified by foreign inquiry. For nine months of the year business was held in check by distributors to a greater or less extent for reasons that applied to production principally, and that kept the buyer constantly alive to the danger of a further shortage of goods. The variations of the raw cotton market throughout the year were without effect on cotton goods prices and the same may be said of Government sales of surplus goods.

An Uphill Road

For the first three months of 1919 trade fought an uphill fight with all the circumstances of the market against it. In the beginning business was concerned in taking losses and January passed without promise of relief from the constant downward trend of prices. During the month, 64x60s, the nominal market barometer, went off three cents a yard and other constructions followed close on its heels. On January second the price of 80 square four yards was 18 cents and at the close of the month the market was 15 cents. The incentive to production was reduced to a minimum and mill policies were divided between closing down and curtailing production. The unsettled state of the cotton market added to the bewilderment of manufacturers who were confronted by labor unrest and the demand for an eight hour day. Meantime business dwindled, and goods accumulated in spite of the cut in production.

February Market Weak

The market continued weak in the early weeks in February but the downward trend of prices was gradually being resisted and in a measure overcome to the end that the price shrinkage in February was about one-fourth of the average loss recorded in the previous month. There was an increase of trading in February confined largely to spots.

Confronted by a shorter working day, manufacturers were in no mood to enlarge their future obligations on a market that offered no guarantee of betterment and that hardly warranted 50 per cent of capacity production and no assurance of profits. It was estimated that mills were operated at about two-thirds capacity at this time, but aside from mills that were operating on specialties for manufacturing trades the general estimates did not reach that figure. Speculators were holding on because any attempt to realize on their holdings reacted against themselves. On the whole, February was a trying month.

The Market Turns

The decline was definitely stopped by the first of March, and also there had been marked improvement in business transacted. During March 64 x 60s recovered a cent a yard on the previous low. While the month was variable the market registered a decisive gain in morale, and as prices gradually recovered business recuperated, and returning confidence set the ball rolling. Prices for certain branded lines of bleached goods were named at their lowest in March, but not for long. Low prices were also named on napped goods and tickings and memorandum sales of wide sheetings were charged up at figures dictated by market conditions at that time and in accord with the understanding outlined when the memorandum orders were placed.

Business in April took its cue from the preceding month. The worst was definitely over and improvement was as definitely under way. The allied trades began buying in a large way and repeated again and again on an advancing market, and a period of feverish activity in certain of its phases carried prices steadily upward.

Jobbers Change Front

Meantime the jobbing trade had not been convinced that things were what they seemed, and were slow in giving support to the market that converting and manufacturing trades were bidding up against them. Jobbers acknowledged the weakness of their contention before the end of April, and the stage was set for the general advance in prices that made May the most prominent month of the year with respect to price advances. Deliveries in general were extended more liberally on the feeling that the price situation warranted a movement of goods, and contracts were made into the last quarter of the year. The market on 60 x 60s at the first of June was about 12 cents, and at the month end was 16 cents. During the month 88 x 80s advanced 5½ cents. Prices were not stationary for any length of time during May. While print cloths led the market activity, everything in gray goods responded to the market uplift.

The Summer Months

The summer months were uncertain. Action and reaction kept prices fluctuating within narrower ranges, and only the special favorites came through with any great appreciation in prices. The Government released about $4,000,000 worth of cotton goods in July, the net effect of which was to prove the market's strength and its surprising capacity for absorbing goods. August was too restful for speculators, who thrive best on excitement, and a flurry of second-hand selling was inaugurated that temporarily upset values on speculative specialties, but the movement was largely confined to second hands. Sales of print cloths and sheetings at first hand only dragged along under the depressing influence of labor unrest and aimless chatter about excess profits and the high cost of living. Something better was expected when vacation days were over and business settled into its stride.

Fall Months Strong

Gingham prices were made for the spring season in September, and the trade got a hint of what was coming when prices were named and quantities were placed on an allotment basis. It was the middle of September before the market developed power all along the line, but buying picked up on the evidence at hand to such an extent that the total for the month was large for both gray and colored goods. October was a busy month, and large consumers of cloths booked orders for months ahead, practically to whatever extent mills were willing to accept business. November was moderately erratic, but the market was well in hand, and so far as mills were concerned there was little effort put forth to sell more goods. The disposition was to sell less rather than more.

A Year of Thrills

An interested observer keeping tabs on the cotton goods market in 1919 was brother to the innocent bystander staring at a human fly scaling the bald face of a New York skyscraper. The cotton goods market was replete with thrills, an ever-present sense of danger; the certainty that what goes up must come down; and the higher the climb the harder the fall. The year closed on a climbing market still going strong, however, and the pressure for many kinds of goods and for advanced dates of delivery was greater than mills could accommodate. The expected softening failed to develop. What went up was not to come down in 1919, and the year finished stronger than the most pronounced optimists had predicted.

Export Demand Exceeds Supply

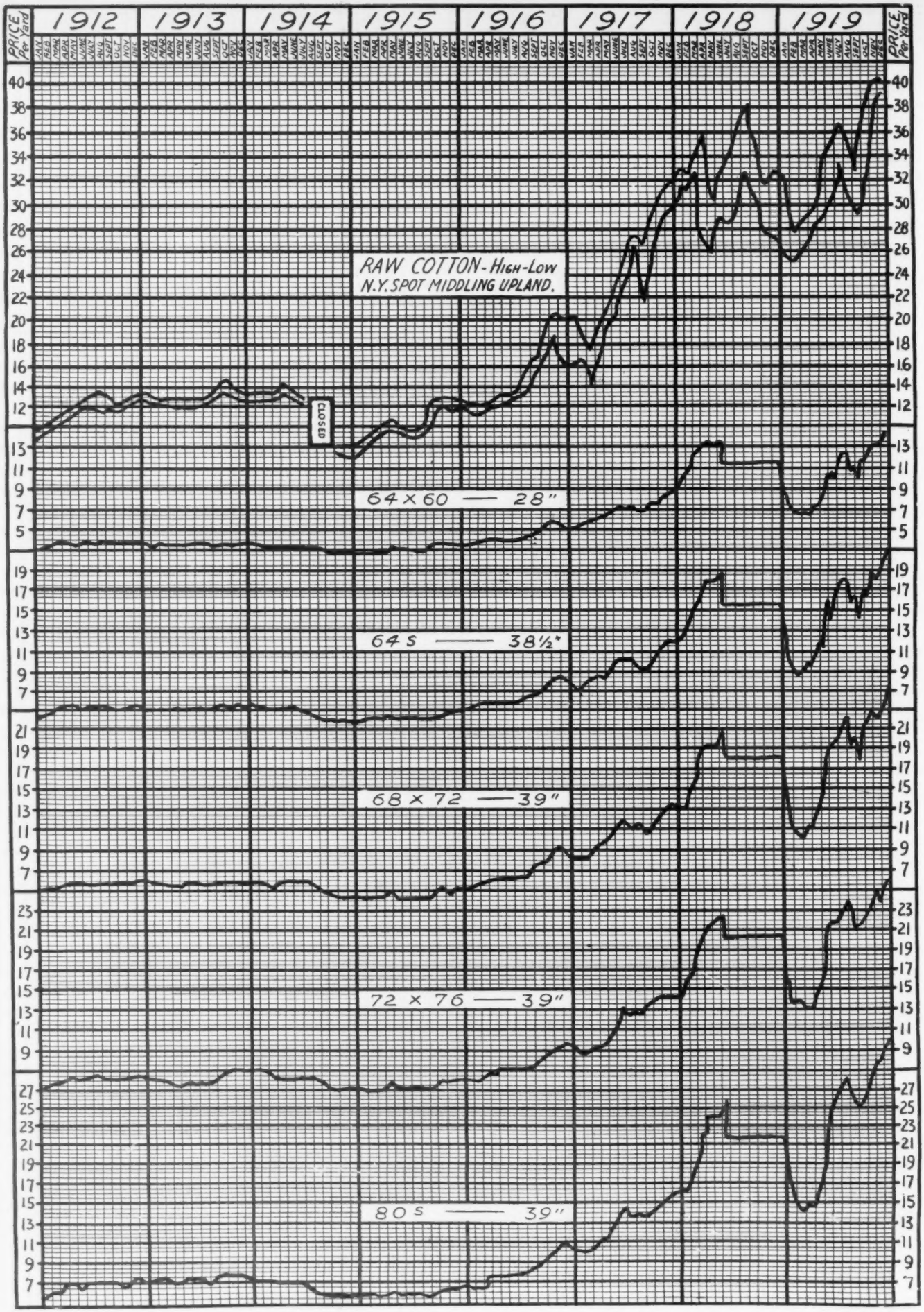
Trade Totals Establish a New Record for the Year

THE year 1919 opened with export buying in cotton piece goods slowed by uncertain prospects. Shipments were light and ships to carry them were few and far between. This market was very unsettled and prices weak and uncertain. A period of stage fright seemed to have followed the armistice and it affected buyers and sellers to such a degree that minor difficulties took on major importance to eyes jaundiced by business indigestion. The shipping shortage was acute, and the wholesale cancellation of contracts, aggravated by a falling market that immediately followed the armistice, dumped a burden of distressed merchandise on a market that was in no position to carry the load. Between December 31 and February 15 the market reacted to such an extent that certain export supplies awaiting shipments shrunk in value approximately 50 per cent. The continuous reaction of the domestic market made these goods, that would have been gladly acquired by the domestic buyer a few months before, a drug on the market.

Weak at First

The stagnation of the domestic market at that time aroused a more general interest in export possibilities, and not a few who had heretofore thought little and cared less about a foreign outlet for their merchandise began to cast about for business of that kind. The business of the first quarter was best with Latin America, excepting Argentina, which was suffering from a harbor strike, an upset market due to excess purchases, and the unexpected armistice which reversed her trade perspective.

A relatively constant buying was reported on account of Cuba, Porto Rico and the West Indies. The market was weak, but second hands were weaker, and a considerable quantity of merchandise was resold for export that failed to show in the records as new business. That sort of thing was not without its usefulness in giving a spank-


1912
1913
1914
1915
1916
1917
1918
1919
PRICE Per Yard
RAW COTTON-HIGH-LOW
N.Y. SPOT MIDDLING UPLAND.
CLOSED
64 x 60 — 28"
64 S — 38½"
68 x 72 — 39"
72 x 76 — 39"
80 S — 39"

ing to a class of opportunists and peremptorily removing them from further interference. The Buenos Aires experience too was not without its corrective influence in some particulars.

China Comes to Market

Buying for China during the first quarter of 1919 introduced a business of some importance, and from a quarter that had been closed for years. The interest shown by Chinese importers, some of whom visited this market, was a definite indication that this market was not only the cheapest in the world, but the most available. China placed a considerable business, especially in gray sheetings, during the interval from mid-February to May. American mills gave more than ordinary consideration to this business in that period when the domestic market was in the doldrums, and orders from anywhere, even at the low prices current, were appreciated. China enjoyed great freedom of action at the time and took liberal advantage of it.

When Times Grew Better

When prices began to stiffen as they did in April, and quotations changed frequently, much business was retarded by rapid and frequent price advances. Communication was difficult; cables were days and weeks delayed. Not a trifle of China business went by the board in April and later on for the reason that advancing prices prevented the ratification of many orders at month-old quotations. Well established export houses with responsible connections were able to carry on in China trade, but those who were dependent on cable advices from their principals and must wait for price confirmation, were grievously hampered. On the other hand, near by markets showed signs of recovery as soon as the American market gave evidences of renewed strength. Cuba, Porto Rico and the West Indies improved, and, after a little, Colombia and certain other Central American sources showed active interest.

American and British Prices

Cotton goods in New York were very much lower than in Manchester, England, prior to March 15, but after that date comparative figures changed rapidly in favor of the English market when American prices rose. Exports of cotton piece goods to all destinations for the month of March were about $15,000,000, as compared to about $12,000,000 in the year before the war. These rough figures, while not official, were given by an authority in the trade. This business, too, was done under restraint and in the face of many obstacles. From the first of April American prices outraced English price advances, and on June 12 the average cost of cotton piece goods in New York was 16% above the cost in Manchester at the current rate of exchange.

Covering New Fields

Foreign demand for cotton piece goods was large in June in spite of higher costs, and began to show a supreme indifference to that feature compared with the greater difficulty of placing orders at any price. China came back in July and August, obviously determined to get goods at prevailing prices, warned by her British experience that higher prices were an inevitable consequence of delay and that a shortage of merchandise was the greater menace to her going business. Both England and the United States were steadily developing trade organizations for the penetration of those countries that had suffered most by the war and of those countries that were as yet outlawed by the result. England was assisted by foreknowledge and familiarity as well as by what was left of pre-war organizations, and had a basis of experience, too, that the United States, for good and sufficient reasons, does not possess. But American initiative has gone far, if not as yet far enough, and leading export concerns in this country have grown and expanded to new fields while laboring under the intense difficulties consequent on a market unable to supply one half the demands made upon it and an increasing problem of exchange that added immensely to the uncertainties of the future as regards some of the greater markets of the world.

A Bigger Demand

The second half of the year featured a tide of foreign demand that rose steadily for weeks and months, and to a large extent was waste opportunity. America is the leading consumer of cotton in the world but she doesn't consume it fast enough nor produce goods enough to fill the gap made in the world's supply by the war. This condition was expected to continue for an indefinite time in any case. The world was still rocking on its foundation and a permanent settlement was among the hopes of the future.

Many New Opportunities

The flood of inquiries that came from foreign sources was impressive. The fact that these inquiries were, in many cases, from utter strangers and from strange places, evidenced the well-known world shortage of textiles and attempts on the part of perplexed traders to bridge the present difficulty. Furthermore, it testified to a progressive beginning on the part of those concerned to open new and permanent sources of supply. In any case, it meant opportunity to American trade, and the fact that these inquiries got patient attention instead of the waste basket proved the changed attitude of American manufacturers in this regard. It may be hard to teach an old dog new tricks, but it can be done. The door was no longer half shut against foreign demand in this market, but wide open, and "Welcome" was on the mat.

The Price Barricade

Export trade records for the year bear witness to the hard work and splendid accomplishments of American exporters under adverse conditions in the home market. Not the least of the handicaps under which exporters labored was the reactionary effect of their hard work used to build a price barricade higher and higher against them. The harder they worked the harder they had to work to overcome that handicap. The export demand for textiles was enormous and helped to complicate the situation when it had to bid against an equally strong home demand, higher and higher for even a pot-boiling share of its excessive requirements. Under the circumstances the policy was to follow the course of least resistance and consider those markets first that offered greatest security and the greatest liberty of action. As a consequence less attention was paid to Central Europe and the Levant. It was not easy to buy goods in this market for the Balkan states last year, because it could not and would not be considered by the most important distributors.

The Department of Commerce tells of the fabulous growth of American foreign commerce for the year 1919 as far beyond the dreams of business men five years ago. Our trade balance for the year is placed at $4,017,000,000. A great fleet of merchant ships, new industries, new sources of supply, and increased knowledge of our own resources are some of the assets gained from our war experience with which we are fortified to meet new conditions. The tremendous increase in the exports of the war period, and the still greater exports of the months following the war, in which foodstuffs figured largely, may not continue indefinitely. The return of a more normal condition in which buying and selling will be of profit to both sides is the basis trade is aiming at. It was too much to expect that such a condition could be achieved in 1919.

Export Year Figures

Export buying in textiles was not so brisk as the year waned as was the case in trade in general. The total of December exports amounted to $681,000,000, a falling off of $60,000,000 from the $741,000,000 recorded for November, according to figures furnished by the Department of Commerce. Imports also fell off for December, the total being $381,000,000 as compared with $425,000,000 for November. Both exports and imports were higher than in December the year before. Exports for 1919 totaled $7,022,000,000; as compared with $6,149,000,000 in 1918, while imports totaled $3,904,000,000 as against $3,031,000,000 for 1918.

Composite Trade Comment

The exit of 1919 left the door open for comment and criticism. It is probable that with 1919 passed the extreme peak of exports for a time at least, as its further expansion is hampered by adverse rates of foreign exchange and a top-heavy price structure erected on a foundation of underproduction. It is a situation to handle judiciously, so much depending on production that either extreme—a further curtailment or an overproduction—might leave little to choose from. Stricken European countries labor under a mountain of debt that must be adjusted before we can trade with them or compete with them in a normal commercial way.

Physically and mentally we have been at odds. Trade conditions and mental attitudes disagreed. One called for thrift to conserve the resources of the people and make a little go far; to produce more and consume less. The other was given over to reckless extravagance, an orgy of speculation and spending. The old year was a year of crazy speculation on the part of money-mad people making haste to get rich, and all hands vying with one another "to keep up with the Joneses." Normal conditions did not come from that sort of thing. The war put billions in the hands of Americans which should be used in the production of the necessities of life for ourselves and others; to be made here and sold abroad as well as at home. And other billions should be invested in gilt edged industrial and transportation securities that will open Europe for trade.

The Universal Demand

American buyers returning from half satisfactory trips to England about the end of December reported London hotels overrun with traders from every quarter of the eastern hemisphere, bent on buying manufactured goods of every description, and whose requirements could not be met for the reason that British factories were overwhelmed with orders. The markets of the world are swept bare of merchandise, and communities in most cases are being rationed from short supplies. Immense trade opportunities on every hand are beckoning to America. But here intervene the problems of credit and exchange that offset some of the promising markets in which no goods from any quarter can be sold without some sort of an arrangement to finance the buyer. England and America are individually working to solve the problems of depreciated foreign currency and the necessity for credit, and much is expected, but the processes are disastrously slow.

Lancashire Cotton Industry in 1919

Following Early Declines a Remarkable Trade Boom Set In

By *Frederick W. Tattersall*

MANCHESTER, ENG., Dec. 31, 1919.—The year opened with trade in a depressed state. Spinners and manufacturers were feeling very severely the effects of the slump in prices and the absence of fresh orders as a result of the signing of the Armistice in the previous November. Buyers had withdrawn from the market and difficulties were arising in connection with deliveries against contracts placed at much higher figures than then ruling. This condition of affairs continued up to the end of March and by that time values in yarn and cloth had declined about 50 per cent. from the level existing in the previous September. The quotations of producers only about covered the cost of production. Many firms were being compelled to restrict output, and unemployment among the operatives was assuming rather serious dimensions. Early in April there were indications of buyers taking more interest in prices and spinners and manufacturers were tested on a freer scale. Business began to revive and owing to producers obtaining some relief, rates hardened. Since then there has been an increasing trade at advancing prices and values are now on a higher level than in the Autumn of 1918. It has been a remarkable year and quite a trade boom is now being experienced, the production of the spinning mills and weaving sheds not being equal to the requirements of customers with the result that spinners and manufacturers are securing prices which are exceedingly profitable.

Enormous Cloth Demand

As mentioned above demand in piece goods during the first three months of the year was inactive and buyers purchased as little as possible. When the change of attitude on the part of the customers did take place there was very soon an important alteration in the situation. It must be placed on record that China was the first market to purchase freely and exporters to the Far East secured a distinct advantage over shippers to other outlets by operating at bottom prices. For very many years China merchants have had the reputation of being the best buyers of cotton fabrics in the world and their action in the Spring of this year was another in-

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Cotton Piece Goods

NEHESCO PRODUCTS

IMPORTERS
All Classes
Raw Products

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PERU, CHINA, HAYTI, ECUADOR
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dication of their remarkable sagacity. Since then demand has been experienced for all quarters of the globe and the chief difficulty has been to supply in an adequate manner the wants of customers. India has recently provided a larger turnover, but it must be said she has bought very badly. Partly owing to the cable delays offers have continually lagged behind Manchester prices and a large portion of the business done for our dependency has been the result of Manchester merchants purchasing in anticipation of the future requirements of dealers abroad. Of the several outlets Calcutta has been the most disappointing. Bombay and Karachi have done fairly well and recently there has been an improvement in the offtake for Madras. Considerable support has been given during the past six or eight months by merchants in the Near East. A large turnover has transpired for Egypt and the outlets of the Levant. As a distributing center of Lancashire goods Cairo is much more important than a few years ago. Substantial buying has taken place from time to time for European countries. The customers in Central and South America were rather slow in operating, but the flow of business has recently shown a distinct improvement. Extensive contracts are now on the books, especially for Brazil and the River Plate. As is often the case, home trade buyers missed their opportunity of purchasing at comparatively low rates, but during the last month there has been a rush of business as many buyers have feared a distinct shortage of supplies in the Spring.

The following is a detailed comparative table of Cotton Piece Goods Exports from Great Britain for the last three years:—

Twelve months ended December.

	1917. Yards.		1918. Yards.		1919. Yards.
Denmark	40,805,800	...	6,547,800	...	118,557,000
Netherlands	25,969,700	...	980,400	...	58,514,600
Belgium	66,600	...	23,900	...	120,792,300
France	123,583,900	...	183,530,100	...	116,715,600
Switzerland	82,014,700	...	75,242,800	...	90,166,400
Portugal, Azores, and Madeira	24,778,200	...	28,134,500	...	10,308,000
Italy	17,303,700	...	15,353,200	...	20,369,800
Greece	940,800	...	8,969,700	...	46,667,200
Morocco	77,147,700	...	84,089,400	...	56,612,100
Foreign West Africa	124,632,000	...	95,072,800	...	53,597,700
Foreign East Africa	14,312,400	...	13,659,300	...	7,903,700
Persia	33,235,200	...	24,502,300	...	15,933,400
Dutch East Indies	248,717,100	...	165,393,800	...	124,189,600
Philippine Islands and Guam	7,409,600	...	6,074,800	...	1,918,700
Siam	32,427,900	...	31,542,400	...	16,153,400
China, including Hong Kong	309,585,900	...	216,370,400	...	304,422,200
Japan	12,597,500	...	10,958,500	...	10,640,800
United States of America	67,684,100	...	29,326,300	...	40,832,300
Cuba	48,640,700	...	37,677,300	...	17,528,600
Hayti	2,199,300	...	539,600	...	1,487,700
San Domingo	2,157,800	...	733,600	...	350,600
Mexico	7,335,600	...	6,727,100	...	5,799,000
Central America	37,833,200	...	18,102,800	...	12,319,200
Colombia and Panama	44,554,400	...	28,360,900	...	30,120,100
Venezuela	40,931,400	...	36,793,000	...	31,735,600
Peru	22,130,600	...	17,736,900	...	7,700,200
Chile	60,149,700	...	58,869,100	...	21,088,700
Brazil	58,335,700	...	52,075,200	...	32,190,200
Uruguay	31,601,000	...	29,808,200	...	16,092,800
Argentine Republic	172,527,800	...	183,015,900	...	107,691,300
Egypt	319,457,200	...	361,608,600	...	183,179,600
British West Africa	141,909,600	...	111,356,100	...	114,918,800
British South Africa	107,944,700	...	150,179,800	...	32,652,300
British East Africa	35,801,300	...	30,899,700	...	7,913,800
Anglo-Egyptian Sudan	3,784,800	...	1,090,200	...	2,010,100
British India, via.:					
Bombay, via Karachi	351,737,700	...	143,676,700	...	110,146,700
Other ports	500,115,600	...	286,077,600	...	165,418,400
Total to Bombay	851,853,300	...	429,754,300	...	275,565,100
Madras	78,866,500	...	33,046,000	...	37,684,300
Bengal, Assam, Bihar, and Orissa	898,872,200	...	449,044,800	...	423,299,200
Burmah	77,112,500	...	23,543,700	...	31,217,300
Straits Settlements	110,070,500	...	105,791,700	...	50,896,400
Ceylon	23,210,100	...	18,736,200	...	10,405,600
Australia	151,569,100	...	170,158,400	...	75,170,900
New Zealand	39,112,200	...	37,111,000	...	21,879,800
Canada	71,829,600	...	33,894,900	...	21,915,800
British West India Islands (including Bahamas) and British Guiana	24,601,400	...	15,221,600	...	9,220,800
Other countries	270,561,900	...	261,603,300	...	732,247,900
Total	4,978,237,900		3,699,252,300		3,528,756,500

b Including Federated Malay States and Labuan.

SUMMARY

	1917. Yards.		1918. Yards.		1919. Yards.
Grey or unbleached	1,136,458,600	...	754,097,700	...	841,357,800
Bleached	1,715,842,800	...	1,200,714,500	...	1,084,083,300
Printed	977,433,000	...	809,352,700	...	690,828,500
Dyed or manufactured from dyed yarns	1,148,503,500	...	935,087,400	...	912,486,900
	4,978,237,900		3,699,252,300		3,528,756,500

The following table gives particulars of prices of American cotton, 32's twist American yarn, and a well known make of gray shirtings during the year:

1919.	Cotton, Good Middling American. per lb. d.	Yarn, 32s Twist. per lb. d.	Cloth, 38 in. Shirtings, 38 yds. 18x16. per piece. s. d.
Jan. 3	22.04	38¾	37 6
Feb. 7	17.97	28½	30 0
Mar. 7	15.96	27½	26 0
Apr. 4	17.24	26	25 0
	Fully Middling American.		
May 2	17.89	29¼	25 6
June 6	19.56	37¼	31 0
July 4	20.04	39¾	34 0
Aug. 1	20.48	42¾	36 0
Sep. 5	18.75	42	35 0
Oct. 3	20.38	42½	35 0
Nov. 7	26.30	49¾	40 6
Dec. 5	26.37	51¼	43 9
Dec. 12	26.98	52	44 0
Dec. 31	30.75	57	47 0

Extraordinary Yarn Demand

Since the beginning of April spinners of yarn have experienced an extraordinary demand. Recently scarcity of supplies has been a pronounced feature of the market. Producers have not been able to supply their customers in an adequate manner and special prices are now being paid for quick delivery. In yarns made from American cotton for consumption in Lancashire the activity in ring beams has been striking and at the time of writing most producers have sold their production for nearly six months ahead. Cop twist has also moved off freely and spinners have plenty of work to go on with. It is hard to find stock lots in first hands. All round wefts have not done quite so well but producers have nothing to complain about. The scarcity of the higher grades of American cotton has been very harrassing and the "points on" which have had to be paid in Liverpool have been a serious matter for spinners, but in spite of these higher charges the margin of profit has been very encouraging. It may be mentioned that according to an analysis of spinning company reports 23 mills during the twelve months ended November 30th made a profit of £340,090 being an average profit per company of £14,786. The share capital of these concerns amounts to £945,815 and loans £369,938. The profit on share capital works out at nearly 36 per cent against 34 per cent. in the previous year. The profit on share and loan capital combined was nearly 26 per cent. as compared with 22 per cent. in 1918. According to a table of 100 companies with a share capital of £4,723,475 the average dividend paid during the twelve months was over 21 per cent. the amount distributed being £1,007,989.

In Egyptian yarns there has been a striking advance in prices. Supplies of Egyptian cotton and rates were controlled up to the end of July by the British and Egyptian Governments but since then values have advanced by about 100 per cent. The demand for fine yarns has been far greater than the supply and many producers are fully sold up to the end of 1920. In export descriptions a feature of interest has been the increased activity in Egyptian qualities for the United States. This larger trade is said to be due to the increased demand in America for tire cloths. During the last three months a much bigger trade has been done in shipping yarns for Eastern countries. Free buying has occurred for India, China and Japan. An extensive business has also transpired for European countries, especially Holland.

The following is a comparative detailed table of Yarn Exports from Great Britain for the last three years:—

Twelve months ended December.

	1917. lbs.		1918. lbs.		1919. lbs.
Russia	3,256,900	...	.....	...	467,900
Sweden	1,094,700	...	1,700	...	4,249,300
Norway	4,251,600	...	1,393,200	...	4,072,100
Denmark	3,869,800	...	729,700	...	6,486,800
Netherlands	31,732,000	...	6,900	...	40,837,400
Belgium	.....	...	.....	...	9,122,100
France	33,741,000	...	66,543,100	...	49,959,300
Switzerland	5,982,100	...	6,882,500	...	8,878,500
Dutch East Indies	484,100	...	129,800	...	292,000
China (including Hong Kong)	188,500	...	67,800	...	350,800
United States of America	10,316,800	...	3,992,700	...	3,890,400
Argentine Republic	2,075,800	...	787,900	...	461,900
Egypt (including Anglo - Egyptian Sudan)	1,440,300	...	928,200	...	1,288,700
British India, via Bombay, via Karachi	779,800	...	335,500	...	344,800
Other ports	4,406,100	...	1,719,000	...	2,872,500
Total to Bombay	5,185,900	...	2,054,500	...	3,217,300
Madras	6,295,900	...	3,490,800	...	3,201,100
Bengal, Assam, Bihar, and Orissa	5,646,600	...	2,211,400	...	2,401,100
Burmah	771,700	...	513,500	...	544,200
Straits Settlements	640,700	...	493,200	...	560,200
Canada	2,901,900	...	1,003,300	...	736,200
Other countries	13,275,000	...	10,481,200	...	21,648,200
Total	131,151,300		101,711,400		162,665,500

a Including Federated Malay States and Labuan.

Owing to the trade activity there has been a remarkable demand for shares in spinning companies, and in order to give some idea of the rise in quotations the following table is given:

	Share.	Paid up.	Quotations. Jan. 8. 1919.	Quotations. Dec. 10. 1919.	Rise.
	£	£			
Astley	5	2½	89/6	242/6	153/–
Castle	5	2½	86/9	155/–	68/3
Cavendish	5	2½	72/6	227/6	155/–
Central	5	2	73/6	192/6	119/–
Crawford	5	2	82/–	295/–	213/–
Doury	4	1½	60/6	135/–	74/6
Garfield	5	2	51/6	202/6	151/–
Gladstone	3	3	71/6	230/–	158/6
Honeywell	5	3	61/6	162/6	101/–
Livingstone	2¾	1¾	81/–	117/6	36/6
Mavis	5	4	114/6	212/6	98/–
Moorfield	5	3	101/–	182/6	81/6
Moss	5	1½	63/6	260/–	196/6
Newton Moor	5	5	92/–	222/6	130/6
North Moor	3	1½	45/6	200/–	154/6
Parkside	5	2	100/–	262/6	162/6
Shaw	3¾	3¾	122/6	282/6	160/–
Standard	5	3	120/–	342/6	222/6
Stanley	5	4½	68/–	118/6	50/6
Wilton	5	5	93/6	402/6	309/–

A striking development of the year has been the sales of mills. This movement began in June and since then nearly 150 concerns have changed hands. The transfers have generally been on the basis of so much a share. Much higher figures are now being paid than three or four months ago. It has been quite usual for companies with shares of the nominal value of £5 with £2 10s. paid up, to be transferred to financial syndicates on the basis of £20 per share. The mills have then been refloated at an increased capital value, and it is of interest to note that when the new shares have come upon the market they have soon gone at a premium. This feature of the industry has been discussed very freely and some people believe that this higher capitalization of production will adversely affect our chances of competing successfully in the markets of the world. On the other hand it is held that there is no possibility of new mills being erected until values of present factories are based more on a level with replacement costs. Previous to 1914 a mule spinning mill in Lancashire could be built at a charge of about 25s. per spindle, the cost of ring spinning factories being about 35s. per spindle. It is estimated that the cost to-day would be about £5 per spindle for mules and about £7 per spindle for rings.

Prospects Healthy

The year closes with spinners and manufacturers in an exceedingly strong position. It is probable that engagements at the moment are more extensive than ever before known in the history of the trade. Values are on a very high level and there is some nervousness as to doing business at current rates for distant delivery, but leading authorities are of the opinion that lower prices in the future are very improbable. Should there be a serious decline in raw cotton rates, producers of yarn and cloth are in a position to hold very strongly to their quotations. Although a big trade has been done during the last nine months, there is no indication of our outlets abroad being

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TRADE MARK

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34 Thomas Street, New York

VIEW OF THE AMOSKEAG MILLS ON EAST BANK OF MERRIMACK RIVER

LOOMS	24,400
SPINDLES	670,000
EMPLOYEES	16,500

Pounds of Cotton Consumed per annum	54,600,000
Pounds of Wool Consumed per annum	15,300,000
Yards of Cloth Woven per annum	258,930,360

27 in. & 32 in. GINGHAMS: AFC, Utility, Three Star, Seersuckers Staple, Bookfold Chambray, Maybourne Madras.

32 in. CHAMBRAYS: 19000 Range, Invincible Suiting, Romper Cloth.

NARROW FLANNELS, FANCY: 1921 Smyrna. PLAIN: Daisy Fleecedown, Iris, Tunis, 1921, Panola, Trinada, Ponceta, Tacuna, Pamela.

32 in. FLANNELS, PLAIN: 2701, 2801.

36 in. FLANNELS, FANCY: 1701, 1501, 1301, 1101. PLAIN: Daisy, Fleecedown, Domet, 1501, 901.

TICKINGS, DENIMS, OLIVE DRAB TWILL, BLEACHED GOODS, GRAY GOODS, SEAMLESS BAGS.

Serges

WORSTED GOODS:

Vigereaux Mixtures

Poplins

over-supplied. In fact, it is reported that in certain distributing centers the sales are larger than the receipts, so stocks instead of increasing are being reduced. The operatives' wages question hangs over the market. Last July the workpeople secured a reduction of hours from 55½ to 48 per week, and it was then agreed that no change should take place for 18 months. Wages were then advanced by 30 per cent. on standard lists rates, and it was arranged that no alteration either up or down should transpire until after April 30, 1920. In view of the extraordinary trade prosperity the operatives are hitching for an immediate rise, but the officials do not wish to break the agreement with the employers. On the other hand, traders would like labor charges to be stabilized beyond April 30, and unofficially a move is now being made to come to terms almost immediately. It remains to be seen what will be done, but the masters are undoubtedly in favor of a substantial rise in wages from April 30 next if the leaders of the operatives will agree to an extension of the agreement, say to the end of 1920.

Lancashire Cotton Mill Sales

Effect of Numerous Transfers at Big Figures Variously Regarded

By *Frederick W. Tattersall*

MANCHESTER, ENG., January 14.—The past year in the Lancashire cotton industry has been notable for the buying and selling of spinning mills. Some weaving sheds have changed hands, but the movement has been almost entirely confined to the spinning section. Weaving is largely carried on by private firms and there is less inclination to sell to syndicates. One of the first mills to be sold was the Pine at Oldham in April last, but it was not realized at the time that the transfer was the beginning of a series of extensive sales. Certain groups of financiers began to operate and make offers for the shares of numerous companies. The tendency of events soon had a considerable effect upon share values and prices very quickly hardened. In Oldham and district most of the transfers have been arranged by local men, but it has been impossible to prevent outsiders coming in and consummating deals. Altogether nearly 200 companies have changed hands and recently much higher prices have been paid by buying syndicates than last summer. The writer has prepared the following table which gives particulars of 62 companies. The old paid-up share capital, the sale price, and the new paid up share capital are given. Many of the mills that have recently been taken over have not yet been refloated so it is not possible to provide particulars for all the transfers.

Company.	Old Paid-up Share Capital.	Sale Price.	New Paid-up Share Capital.
Athens	32,000	192,000	120,000
Arrow	54,000	288,000	150,000
Avon	24,000	48,000	26,000
Broadway	35,205	181,892	100,000
Briar	32,000	336,000	100,000
Butterworth Hall	32,000	192,000	125,000
Belgian	41,445	159,780	70,000
Boundary	18,000	.....	100,000
Commercial	44,868	112,170	75,000
Cape	30,000	270,000	125,000
Clough (Shaw)	12,500	117,500	40,000
Chadderton	32,000	156,000	78,000
Copster	30,000	100,000	60,000
Crest	56,000	256,000	125,000
Coral	16,000	168,000	75,000
Clough (Springhead)	5,434	34,099	32,500
Cromer	80,000	400,000	200,000
Dawn	48,000	328,000	100,000
Delta	30,000	360,000	200,000
Dicken Green	8,000	50,000	30,000
Earl	32,000	176,000	90,000
Equitable	64,625	180,950	90,000
Fern	30,000	270,000	150,000
Fernhurst	40,000	315,000	130,000
Falcon (Bolton)	56,480	240,000	190,000
Glodwick	29,352	190,858	100,000
Greenacres	28,000	252,000	125,000
Grimshaw Lane	27,000	54,000	62,500
Harper Twist	26,358	96,383	60,000
Hope	27,000	144,000	70,000
Hyde	77,500	240,000	125,000
Hollinwood	16,800	144,000	75,000
Heron	48,000	248,000	100,000
Junction	40,000	130,000	150,000
Lees brook	16,000	320,000	120,000
Lees Union	30,000	100,000	75,000
Lily	80,000	608,000	250,000
Milton	36,725	113,000	250,000
Monarch	56,000	256,000	125,000
Manor	32,000	258,000	100,000
Malta	48,000	280,000	150,000
Mather Lane	250,000	1,250,000	500,000
Oldham Twist	62,500	312,500	150,000
Pine	35,000	135,000	120,000
Pearl	64,590	494,885	300,000
Palmer	90,000	315,000	150,000
Pear	15,000	393,750	125,000
Rex	40,000	294,000	130,000
Roy	24,000	368,000	130,000
Regent	28,000	176,000	100,000
Ramsey	42,000	160,000	90,000
Raven	40,000	200,000	90,000
Rugby	28,000	120,000	110,000
Saxon	49,000	171,500	200,000
Smallbrook	42,000	171,500	75,000
Swan	60,000	156,000	80,000
Stalybridge	37,500	210,000	140,000
Sparth	60,000	410,000	150,000
Stockport, Ring, Nos. 1, 2 and 3	64,500	887,700	750,000
United	70,000	245,000	100,000
West End	45,000	241,875	100,000
Wye	10,000	320,000	125,000

Particulars of Transfers

The table shows that the total paid up share capital of the 62 old companies amounted to £2,670,382 while the total paid up share capital of the new companies is £8,234,000. It will at once be seen that in order to maintain past dividends the directors of the new companies will have to make much more money than formerly. On the whole the change is the result of the increased value of the factories standing, due to appreciation in all property since the beginning of the War.

One of the most active persons connected with the deals has been Samuel F. Mellor, a well known share broker, of Oldham. He has been taking part so far in about 15 transfers. Another prominent figure in the movement has been Councillor Hopwood of Oldham. Other persons who have been in the swim are Alderman Wiggins, of Middleton, J. W. Platt of Ashton-under-Lyne, F. Platt of Oldham and F. Dawson.

Cotton Mills Trust Activity

The formation of the Amalgamated Cotton Mills Trust Limited early last year caused much comment and that company has taken over several important concerns including Messrs. John Ashworth, Astley Bridge, near Bolton, R. H. Buckley & Sons Ltd., Mossley and Manchester. The chief deal of the Trust however has been the acquisition of Horrockes, Crewdson & Co., Preston, the largest private spinning and manufacturing firm in Lancashire which owns nearly 10,000 looms, and over 300,000 spindles. It is understood the purchase price was over £5,000,000.

Effect on Operative

In view of the important developments which have taken place the leaders of the operatives have been much concerned as to their position in the future. Owing to the unrest amongst the work people the trade union officials two or three months ago approached the Master Spinners' Federation on the matter and asked for the opinion of the employers on the probable effect of the transfer of mills on the future prosperity of the industry, and what was likely to be the effect on the future working conditions of the operatives. The Masters Federation gave a long reply. They pointed out the reduction in production owing to the adoption of the 48-hour week, the present high cost of mill building, and the fact that share holders in many concerns had in the past received only low dividends or no return at all on their capital. They expressed the opinion that a good many of the transfers have been a sound practicable business propositon and they stated that the tendency of higher values would be to stabilize industry and consequently stabilize the conditions of the operatives. The leaders of the workpeople were not satisfied with the reply, but in trade circles it was believed at the time that the manifesto of the employers put the position very plainly and that in the circumstances the developments were not unnatural.

Confidence in Future

The present trade boom is expected to last for at least three or four years and confidence in the future is shown by the fact that there is an active demand for shares in the new companies which have been floated on a much higher capital basis than the old concerns. Practically all the new shares stand at a premium. In most instances the new companies are registered in £1 shares with 10s called up and issued at a premium of 2s. 6d. These securities are now changing hands at from 15s to 20s each and at the end of December numerous dividends at the rate of 20 per cent per annum were announced.

Those who take long views, however, are of opinion that in the years to come the industry will feel the bad effects of the larger amount of capital which is now being used in the trade. When the markets of the world are supplied with cotton goods there will be increased competition and it may then be exceedingly difficult to make sufficient profit to pay a fair return on capital. The output of the spinning mills and weaving sheds is at present far below the requirements of our customers and it is reasonable to expect the erection of more plants before very long. At the moment textile machinists are exceedingly busy on contracts for European countries, especially France and Belgium, but when it is possible to secure deliveries there is every reason to anticipate a mill building movement in Lancashire on a considerable scale. The prices which will have to be paid for machinery and building materials will be high, but the charges may not be very much above the cost per spindle at which some of the old companies now stand on the books.

Raw Cotton Reached 40 Cents in 1919

Extraordinary Prosperity Reflected Throughout Cotton Industry

NOTWITHSTANDING many discouragements and disappointments in the progress of world events since the signing of the Armistice, the year has been one of extraordinary prosperity for producers of both raw cotton and cotton goods. The course of business has been complicated by the many uncertainties of international finance and credits, labor unrest, and the political bickerings which have delayed the formal conclusion of world peace. But in spite of all obstacles and the seriousness of the problems remaining to be dealt with, business has persisted; the turmoil and excitement of war-times has been gradually subsiding, and the world is getting back to work. This has been reflected, so far as cotton is concerned, in the activity of the demand for manufactured goods, apparently regardless of prices, and a steadily expanding volume of raw material distribution.

The old year opened with the trade in a state of transition. Huge war contracts were being cancelled; many goods produced for the use of the Army or Navy were made available for other purposes, and, for a time at least, the demand for civilian uses failed to materialize rapidly enough to make up for the withdrawal of Government orders. The new year finds the demand for replacing goods, exhausted during the war, in full swing, and perhaps the most clearly defined feature of the situation as it stands today is the scarcity of textiles as a world-wide proposition. This has been shown in the volume of business reported at advancing prices, and it is quite clear that manufacturing facilities available have not been sufficient to meet the current needs from day to day and at the same time make any material progress in replacing the reserve supplies necessary to the comfort and security of the world at peace. The need of expansion has been recognized in the markets for mill shares at home and abroad, as well as in the demand for mill machinery of all descriptions, and it seems fair to assume that mill consumption will increase as rapidly as additional facilities can be supplied or old mills previously short of raw material or labor can be set in motion.

It is doubtless the situation in this respect which accounts for the confidence of cotton holders in the South, whose financial independence has been increased by war prices and whose refusal to sell freely at declines has been one of the outstanding features of the season.

Naturally, the demand for raw material cannot expand more rapidly than manufacturing facilities, but until these have reached the required point of production there must still be an unsatisfied demand for goods promising an ultimate outlet for any temporary raw material surplus. In the absence of political or labor upheavals, consequently, the prospect would appear to be for a steadily increasing or at least sustained demand for raw material, with the question of prices depending upon the further attitude of holders or producers as they may be influenced by such uncertainty as coming crop prospects or processes of deflation through the liquidation of credits and their effect on the world's buying power.

Certainly as the production of goods increases and the world becomes better clothed, buyers may grow more critical of prices at which they will operate for less pressing needs, and it is generally realized that deflation with a period of declining commodity values is inevitable. Warning notes are already being sounded by prominent bankers and economists, but so long as merchants and manufacturers are able to sell all the goods they are able to produce at profitable prices, they will probably continue to do so, and as yet it is by no means clear that credits curtailed in one direc-

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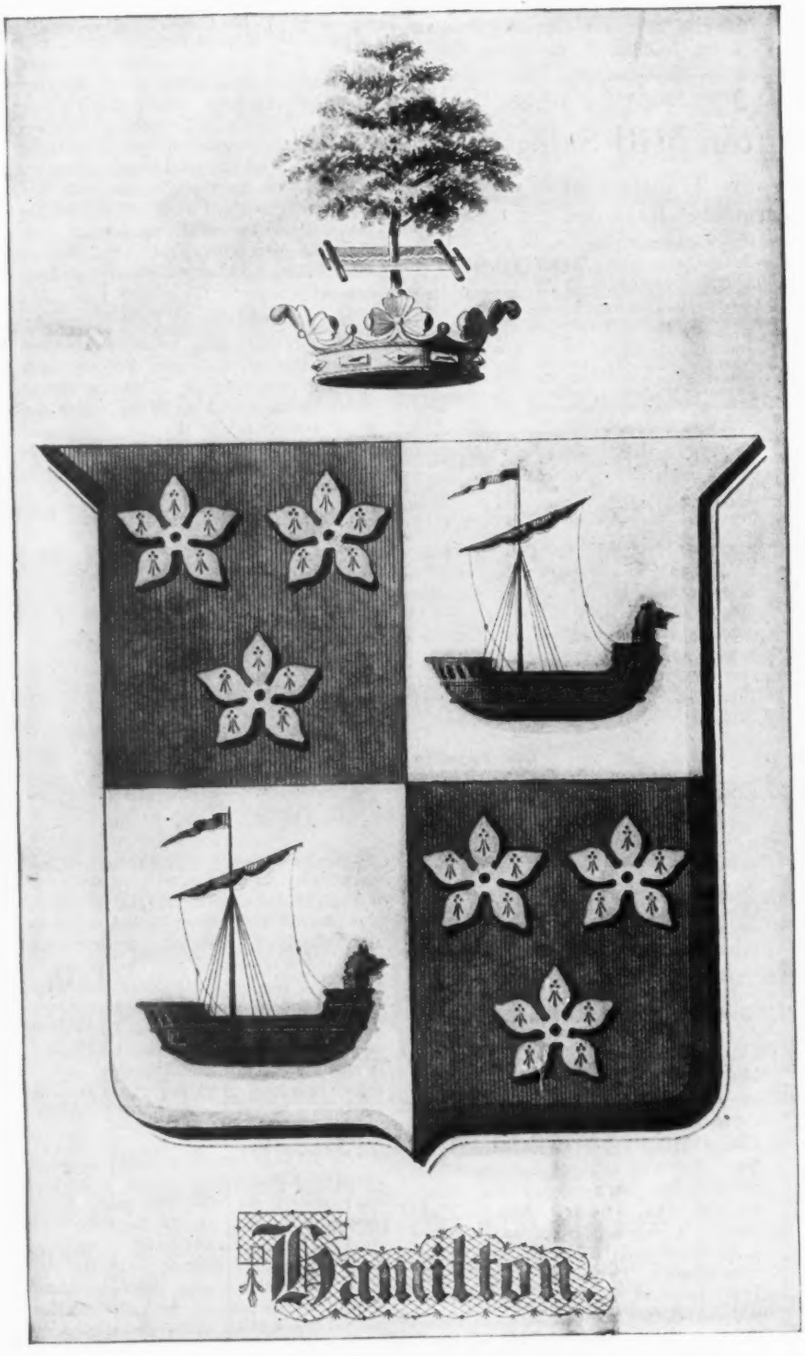

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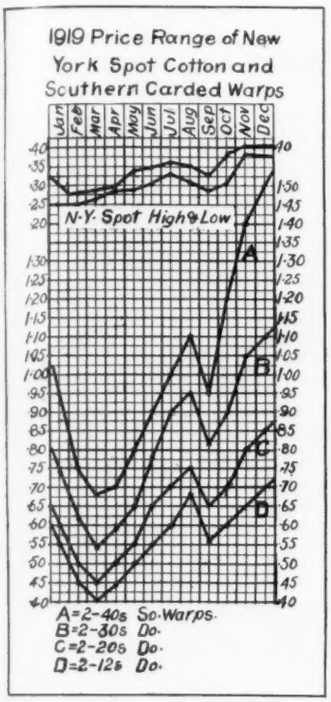
tion will not be offset by extensions in others or that credits denied to speculative uses will not be employed in the financing of an expanding world's trade or used more largely in aid of European reconstruction.

Course of Prices

The decline resulting from the cancellation of war contracts did not culminate until February and carried prices down from the 30-cent level prevailing at the beginning of the year to approximately the 20-cent mark. This move-



ment of prices alarmed the South and led to the formation of organizations for the protection of raw material values, as a first step in which an active campaign was inaugurated for a reduction in acreage. Farmers were earnestly urged to cut down the area planted by not less than one-third, and after the liquidation of war contracts had been completed the markets turned firmer on a revival of goods demand, the possibility of a reduced production, and the resistance of remaining spotholders.

The campaign for reduced acreage was only partially successful, the decrease indicated by the Government's estimate at the beginning of July being only 8.7 per cent., but the growing season proved unfavorable and prospects for the fifth short crop in succession, combined with the apparently insatiable demand for goods, forced prices above the 30-cent level before the end of the summer. Moderate reactions occurred during the early marketing season, with prices breaking below 30 cents in October, but the market soon recovered and the high point of the year was reached by December contracts, which sold at 40 cents as they reached maturity.

Fluctuations since then have been more or less irregular, owing to the unsettled state of the money market, but trade buying against the continued strength of the goods situation has made its appearance on declines, while there has been very little pressure of spot offerings, and prices at the beginning of the new year are ruling around the 38-cent level for the spot month in futures and from about 38 to 42 cents for Middling in the Southern spot markets.

Statistical features have been given comparatively little attention for the past two seasons. The trade has, of course, discussed crop prospects and probable takings for consumption, but such matters have not been given the close study which they received in prewar markets. The feeling has evidently been that a temporary surplus of cotton in this country would be readily held and financed so long as scarcity abroad promised an ultimate outlet, and more interest has been felt in the probable attitude of holders than in the amount of cotton actually available.

Now that takings are beginning to assume something more like normal proportions, however, the statistical situation is attracting increased attention. Exports of cotton for the calendar year amounted to 6,499,012 bales, compared with 4,112,349 during 1918 and 8,770,152 for 1913. Domestic mill consumption of lint cotton for the calendar year was 5,923,384 bales, against 6,179,584 for 1918 and 5,683,468 in 1913. Consumption of linters has fallen off very sharply since the Armistice, and for the year 1919 amounted to only 207,309 bales, against 1,062,742 for 1918 and 307,155 for 1913, the last full calendar year before the beginning of the war. These figures for months will be found in the following table, as compiled from the records of the Census Bureau:

DOMESTIC MILL CONSUMPTION

	1919.		1918.		1913.	
	Lint.	Linters.	Lint.	Linters.	Lint.	Linters.
January	556,721	7,139	523,947	69,817	509,694	24,049
February	433,516	8,752	510,084	87,961	448,095	23,118
March	433,720	10,358	571,443	109,267	462,455	23,118
April	475,753	11,169	544,125	106,232	478,506	25,484
May	487,998	13,484	575,862	110,543	481,993	27,327
June	474,407	15,037	515,823	102,496	441,157	25,355
July	509,793	21,177	541,457	107,905	462,242	24,750
August	502,536	21,171	534,914	100,473	432,350	26,630
September	491,313	23,227	490,779	96,512	442,435	27,697
October	555,344	25,603	440,833	97,927	511,923	31,392
November	490,698	25,132	457,376	63,325	456,356	26,242
December	511,585	25,050	472,941	10,284	456,262	21,993
	5,923,384	207,309	6,179,584	1,062,742	5,683,468	307,155

The figures on exports by months for the same years are shown below and are of interest in tracing the course of distribution, with the comparatively small figures of the early autumn, due, in part, to labor troubles:

EXPORTS

	1919.	1918.	1913.
Jan.	658,143	462,562	900,931
Feb.	449,523	359,774	530,911
Mar.	504,239	311,681	372,073
Apr.	411,916	217,802	534,596
May	444,718	292,041	468,966
June	631,985	273,302	223,921
July	528,992	218,877	140,710
Aug.	479,058	287,450	257,172
Sept.	236,694	366,375	930,328
Oct.	352,231	383,995	1,517,891
Nov.	924,751	350,003	1,501,259
Dec.	876,852	588,487	1,391,394
Totals	6,499,012	4,112,349	8,770,152

The Probable Carry-Over

According to Secretary Hester of the New Orleans Cotton Exchange, there were carried forward at the beginning of the new season (August 1st, 1919) 6,824,000 bales of cotton, including European mill and port stocks, and about 699,000 bales of linters. On the basis of these figures, combined with the reports of the Census Bureau on supply and distribution, it is probable that there were carried over in this country, including linters and mill stocks, about 5,291,000 bales. Adding to this the probable imports and an estimated crop of 11,800,000 bales, including linters, the indication would point to a supply available for the season of approximately 17,500,000 bales. Estimating exports for the season at 7,100,000 bales, and domestic mill consumption of lint and linters at 6,350,000, there would be left about 4,000,000 bales in this country at the beginning of next season. The details of this calculation, with comparisons for the past two seasons, are shown in the following table:

	1919-20.	1918-19.	1917-18.
Supply beginning season:			
In consuming establishments	1,568,748	1,603,331	1,614,888
In public storage and compresses	2,409,438	1,971,774	1,118,944
Elsewhere estimated	*1,312,814	315,000	440,000
	5,291,000	3,890,105	3,173,832
Imports	†425,000	200,000	217,381
Ginning, including linters	†11,800,000	12,835,393	12,344,664
To balance distribution	.....	*194,094	340,681
Total indicated supply	17,516,000	17,119,592	16,076,558
Distribution:			
Exported	†7,100,000	5,605,000	4,476,124
Consumed, including linters	†6,350,000	6,222,856	7,685,329
Burnt	.....	.....	25,000
	13,450,000	11,828,592	12,186,453
On hand end season:			
In consuming establishments	.....	1,568,748	1,603,331
Public storage and compresses	.....	2,409,438	1,971,774
Elsewhere, estimated	.....	*1,312,814	315,000
Total	†4,066,000	5,291,000	3,890,105

* Estimates based partly on Secretary Hester's annual report.
† Estimates based on Census figures so far available.

In any consideration of the carry-over, however, allowances must be made for the probability that it includes a great deal of undesirable, untenderable and perhaps unspinnable cotton. There was a surplus of low grades in the crop of 1918, and the wet weather during the autumn of 1919, led to the lowering of the grade of a good deal of the last crop. This has been reflected in the tremendous premiums commanded by the higher grades of white cotton in the South, and it is reported that many cotton shippers have suffered heavy losses owing to advances in the basis.

The situation in this respect has also been reflected in the contract markets, although values, on the whole, have been held nearer a parity with middling by the adoption of the low middling contract which was provided for by the passage of an amendment to the Cotton Futures Law early last spring. This change took place without any serious criticism in the trade, except for the fact that it was adopted almost without notice, and for several months necessitated trading in two forms of contracts with operations in the old contract restricted to the closing-out of previous commitments.

Under the terms of this new contract no cotton below the value of low middling white is tenderable, and only ten grades are now deliverable upon New York contracts, compared with twenty-one under the old rules. In a normal season, however, these ten grades would constitute the great bulk of the crop, and so far as surface indications go, the trade seems fully reconciled to the change.

Objections to Outside Deliveries

Notwithstanding the improvement in the contract from the buyer's standpoint, advances in the New York market do not appear to have been sufficient to attract any large amount of cotton here for delivery on maturing months. The stock of certificated cotton here at last accounts amounted to less than 15,000 bales, and the absence of a larger stock to serve as a protection for hedge sellers has given rise to some uneasiness. In certain quarters the adoption of the southern warehouse plan has been again suggested as a remedy for the situation in this respect, but the advisability of such action was quite thoroughly discussed in 1918, and many objections have been raised to the proposal.

It has been pointed out that in the nature of things, the contract already afforded the seller an advantage, as it permitted him to select the grade or grades which he delivered as well as the time of the month that he would make delivery, and that if in addition to this, the seller was given the right to select from several authorized centers, the point of delivery which would best suit his interests, it would be still more difficult to maintain a proper parity between the contract and middling cotton. This objection under normal conditions seems to have been sufficient to outweigh the advantages claimed for the proposed change, although a committee of the Exchange in an exhausted report, rendered during the war, proposed to meet the problem by an increased differential.

Their idea was that if the seller elected to deliver at a point outside New York, he must deduct from the basis or contract price of his cotton not only the cost of putting it from the point of delivery to a New York warehouse, but also a certain amount in consideration of his privilege in selecting the delivery point. It was felt in this connection, that if it were possible to fix upon a differential that would accurately measure the advantage to the seller under all conditions, the problem might be disposed of, but that the advantage might be worth more under certain conditions than others and that the differential could hardly be automatically regulated.

The question of varying differences between grades at different points in the South also entered into the matter, and traders were inclined to go very cautiously in adopting any plan which might lead to greater disparities of the sort that have caused so much criticism of the future system and which under exceptional conditions have worked to the detriment of either long or short hedgers in the past. The truth of the matter regarding hedging markets appears to be that no system can be devised which will work as well under exceptional as under normal or average conditions and that periods of disparity are inevitable. Their disadvantages must be weighed against the obvious uses and utilities of futures markets and the hedging facilities which they provide as a long-range proposition.

Coming Crop Uncertainties

It is still too early for the formulation of opinion regarding coming acreage and crop prospects. Usually the work of preparing ground for the new crop begins during the middle of Jan-

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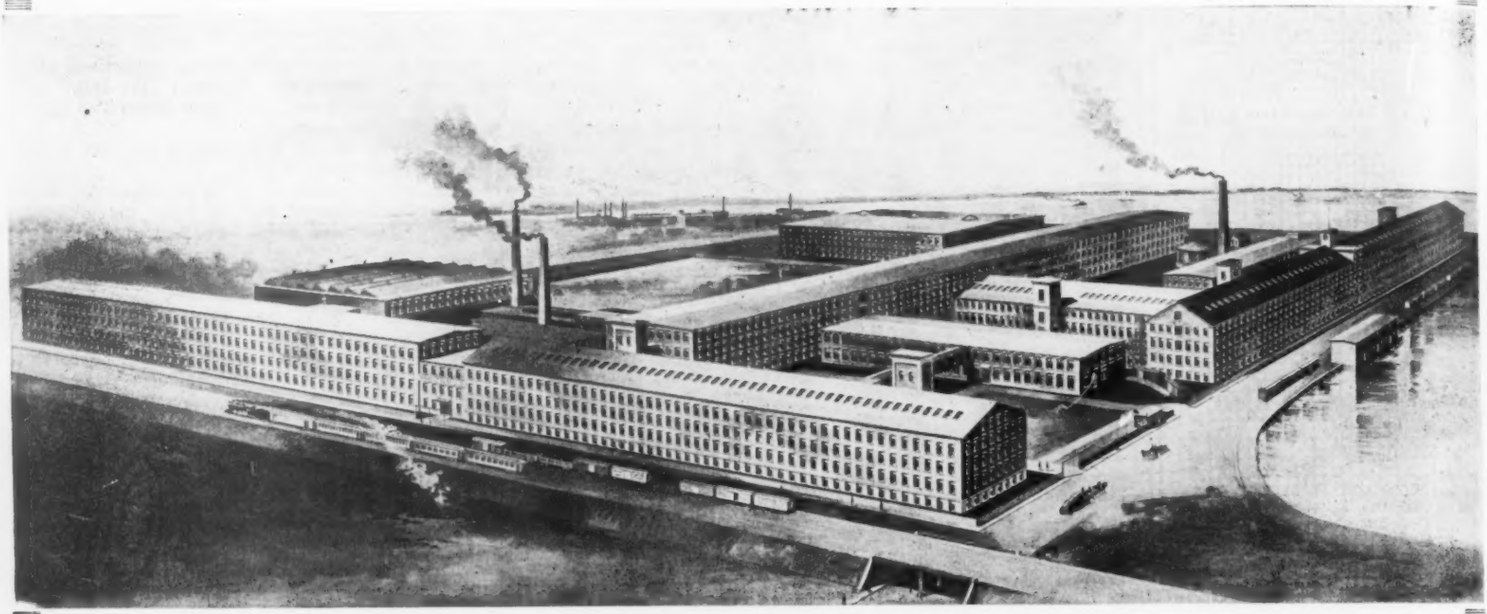

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uary in South Texas, but the weather this season has been unfavorable and there have been delays for that reason. These, of course, are of no importance and there can be little doubt that there is a season in the ground which should modify the effects of a possible drouthy summer. But after five short crops in succession people are beginning to wonder whether large yields per acre are to be expected, particularly in the regions infested by the boll weevil.

Some think that short crops during the war period have resulted partly from lack of potash, but unfavorable weather conditions were partly responsible for the last short yield, and it is believed that despite the greatly increased cost of production, the prices obtained this season have been high enough to promote thorough cultivation. For the same reason an increase in acreage is most generally expected, although diversified farming has found greater favor in the South, and it is not unnatural that the cotton grower should prefer to get more money for a small crop than less money for a large crop. According to the estimates of Secretary Hester the crop of 1918, including seed, amounted to $2,045,251,868, compared with $2,001,682,939 the previous year and $1,412,860,035 two years before, when the commercial crop was 12,940,934 bales, compared with last season's total of 11,639,653 bales.

THE YEAR IN FIGURES

	1919.	1918.	1917.	1916.
January:				
May contracts, New York	27.50–20.00	31.58–29.35	19.08–16.55	12.88–11.93
In sight for month	1,422,114	1,295,025	1,253,024	1,105,687
Ginned to Jan. 1	10,773,863	10,434,852	10,039,491	10,636,778
Ginned to Jan. 16	11,048,652	10,570,733	11,137,712	11,751,990
February:				
May contracts, New York	22.92–19.80	31.39–29.25	16.78–12.50	12.28–11.24
In sight for month	783,959	821,137	680,492	882,481
March:				
May contracts, New York*	25.26–21.75	33.23–32.37	19.11–16.48	12.08–11.34
In sight for month	614,203	791,462	499,738	818,707
Final ginning	11,906,480	11,248,242	11,363,915	11,068,173
April:				
May contracts, New York	28.90–25.00	34.50–25.00	21.25–18.72	11.99–11.76
In sight for month	520,220	465,177	357,570	697,231
May:				
May contracts, New York	31.00–27.68	27.18–25.10	21.34–19.35	13.15–11.98
In sight for month	576,736	413,156	357,497	648,588
June:				
July contracts, New York	34.40–23.55	.....	27.58–21.59	13.38–12.50
In sight for month	663,980	393,099	360,216	419,011
June condition	75.6	82.3	69.5	77.5
July:				
July contracts, New York	35.95–32.93	28.45–24.38	27.20–23.61	13.17–12.70
In sight for month	570,994	418,883	386,393	389,867
July condition	70.0	85.8	70.3	81.1
Acreage estimate	33,960,000	37,207,000	34,925,000	36,052,000
August:				
October contracts, New York	35.50–29.75	35.70–24.80	26.50–21.40	16.33–13.10
In sight for month	265,724	306,142	385,299	423,627
August condition	67.1	73.6	70.3	72.3
Commercial crop	11,640,000	11,907,000	12,941,000	12,861,538
Visible end season, American	3,177,000	1,932,000	1,504,000	2,235,634
September:				
October contracts, New York	32.60–27.95	37.25–31.20	24.49–19.95	16.50–14.81
In sight for month	613,553	1,016,526	1,094,357	1,680,340
September condition	61.4	55.7	67.8	72.5
Ginned to Sept. 1	138,993	1,038,087	615,587	850,812
Ginned to Sept. 26	1,837,708	3,773,812	2,512,800	4,081,693
October:				
December contracts, New York	37.00–30.60	33.90–28.05	27.45–23.60	19.75–16.87
In sight for month	1,771,055	1,640,896	2,036,480	2,600,585
October condition	54.4	54.4	60.4	56.3
Ginned to Oct. 18	4,933,408	6,818,628	5,577,156	7,305,966
November:				
December contracts, New York	38.50–35.00	29.70–26.00	20.50–27.05	21.06–18.64
In sight for month	2,161,232	1,613,091	2,023,363	2,290,686
Ginned to Nov. 1	6,312,301	7,778,899	7,182,674	8,626,289
Ginned to Nov. 14	7,608,026	8,706,970	8,574,316	9,619,056
December:				
December contracts, New York	40.00–35.95	32.00–25.70	30.73–28.75	20.42–16.13
In sight for month	2,070,445	1,640,000	1,809,353	1,879,944
Ginned Dec. 1	8,849,471	9,565,699	9,716,098	10,356,013
Government crop estimate	11,030,000	11,700,000	10,949,000	11,511,000
Ginned to Dec. 13	9,402,520	10,252,402	10,142,850	10,845,989

* New contracts.

Record Season for Staple Cottons

High Prices Paid Produced by Variety of Natural and Artificial Causes

(*By Our Regular Correspondent*)

MEMPHIS, TENN., Jan. 30.—A small lot of cotton sold at Memphis early in November at the rate of $1.25 a pound. Basis, middling, at that time was officially quoted on 'Change at Memphis at 43 cents, the record maximum since the Memphis Cotton Exchange has been in existence. Differences ranged from good ordinary, white, 1,000 off to middling fair, white, 225 on.

Several months before, or, at about Feb. 1, cotton equally as good was slow of sale above 40 cents. Demand was lacking at any price, although there was no distinct pressure to sell.

The said lot, sold at $1.25 the pound, was heavy bodied, strong of fiber, beautifully creamy in color, the staple measuring uniformly 1⅜ inches, and grading strict good middling.

Explanation of the great advance in price, most of which occurred after Sept. 1, is not far to seek. It all goes back to supply and demand.

The turn of the year, following the signing of the armistice, found the business world groping without the help of precedent. That a period of transition had arrived was perceived. Viewed from the standpoint of pre-war values prices were bound to come down. But there was an abundance of money, inflation was world-wide, and many needs of the consuming public, at home and abroad, were in arrears. Yet, there was a note of caution, if not of pessimism, which dictated a policy of hand-to-mouth buying. Too, it was believed, stocks of raw materials, under the stimulus of the war emergency, had been accumulated in excess of manufacturing capacity and facilities for distribution. Raw cotton was in such generous supply, compared with spinning machinery, as to warrant a very complacent attitude on the part of mill owners. Predictions during January that the carry-over of raw cotton, American, at July 31, would exceed 6,000,000 bales were more than fulfilled. The price trend of cotton goods was downward for a time.

Stocks of cotton, short and staple, at Memphis Feb. 1, 1919, approximated 300,000 bales. By far the greater part of the whole, on which exact figures were never available, consisted of staples grading above strict middling, or was very low grade of either long or short staple cotton, none of which was in demand. Many "bollies" were included. High prices encouraged the production of bollies, and production was further increased by early frosts which caught much immature cotton. White cotton of any kind was scarce, due to the poor quality of the crop and Government specifications and inspections of manufactures for war purposes, which specifications and inspections many still believe were absurd. On the other hand the conditions mentioned in the foregoing tended to increase the percentage of low grades, and this tendency was intensified by the blockade against Central Europe. German ports had received of American cotton annually 2,500,000 to 2,800,000 bales. Germany had developed the manufacture of low grade cottons to a remarkable degree. This outlet for low grades, even indirectly through neighborly neutrals, was shut off early during the year 1915.

Effect of Acreage Reduction

Staples participated in the general price advance which started about the time a movement was put on foot to reduce cotton acreage, and which advance continued through the later months. Staples did not command unusual premiums until the new ginning was well under way.

One of the arguments used in the acreage reduction campaign was that a boll weevil year was in prospect. It was pointed out that the winter had been comparatively mild, and, counting on the law of averages, plenty of wet weather could be expected. Such conditions favored boll weevil.

Staple cottons are grown on the most fertile lands, low lands peculiarly susceptible to boll weevil depredations. Production is almost entirely confined to the best class of farmers, men who read and who think ahead.

As a consequence of the warning against weevil many staple producers planted short cotton hoping thereby to mature their crops before weevil activity could work great damage. Short cotton, comparatively, requires a short growing season. Some, impressed by the scarcity of good white cotton and the slow sale for staples, planted short cotton, because they could reasonably expect a greater yield of lint per acre and the chances of selling it presented no complications. Extra length cotton usually requires from 100 to 300 more pounds of seed cotton to make a 500-pound bale than short cotton. The variety of the seed is, of course, the primary factor in determining the length of staple although soil and atmospheric conditions and cultivation also play important parts.

Early Conditions Change

Planting was started under favorable conditions but rains became general over the belt, except the Carolinas. Germination was excellent and good stands were obtained, but grass and weeds came up with the cotton. Cultivation was prevented by continued rains, farmers were unable to carry out their original plans for planting, and much acreage, already up to a good stand but deep in grass, had to be abandoned. Government estimates placed the amount of abandoned acreage at 4.6 per cent. while private estimates ranged from something under four per cent. to more than 10 per cent. Conditions throughout the Carolinas continued most favorable. The early season in Georgia was favorable, and abandoned acreage in that state was negligible. Throughout the staple producing areas, the Yazoo-Mississippi delta, in Arkansas, and along the Trinity and Red rivers of Texas and Oklahoma conditions could hardly have been worse. Fully 10 per cent. of the cotton planted in Mississippi, Arkansas and Oklahoma was abandoned, and a somewhat lesser percentage of the Texas planting.

Rains continued until about the middle of July, but such crops as had been rescued from the grass were "laid by" in a fairly good state of cultivation. A luxuriant and beautiful plant disposed to fruit heavily. Boll weevil infested the southern half of the belt from the Atlantic seaboard, to, and including the highly productive areas of central Texas. The semi-arid regions of Western Texas, well watered by rainfall for the first time in years, untouched by boll weevil produced a magnificent crop. Long staple districts in Memphis territory escaped with negligible damage from boll weevil, but Central Texas had also to contend with an unusually destructive infestation of boll worms.

Drougty tendencies followed the excessive rains. Some Arkansas and Mississippi farmers complained, but dry weather was probably beneficial on the whole in holding the weevil in check.

The Crop Late

Conditions for picking were favorable until about the close of the first week in October, except for the fact that the crop was from two to three weeks late. Official and private bureau reports in this regard were fully confirmed in the remarkably light ginning during the early census periods. While reports uniformly, throughout the season, indicated a short crop, due entirely to reduced acreage and weevil and worm depredations, all until about Oct. 15 favored the view that it would rank second to none in grade and staple. Disappointment was confined to the grade.

The theory, often advanced, that a generous amount of rainfall is a prerequisite to the production of good staple was verified in the unusually good quality of the staple of the year 1919 growth. Especially has this been noticeable in Texas grown cotton. Portions of Western Texas with a normal annual rainfall of 23 inches, which seems to be about the minimum requirement for cotton production, in addition to good winter rainfall, received 18 to 28 inches from March 1 to September 30, a plus variation from the normal of about 150 per cent. The aggregate closely approximated the normal annual rainfall, 45 to 55 inches, of the Yazoo-Mississippi delta, considered ideal for cotton growing if well distributed.

Many southern cotton men entered, during mid-summer, upon commitments for actual cotton for later delivery. Prices offered looked tempting at that time, but, in the light of experience, they were invitations to disaster.

Basis, middling, was officially quoted at 34.50, Memphis, on Aug. 9. Staples commanded no unusual premiums. Highest basis quoted on this market during the season was 43 cents, early in November. That price was transient, but a quotation of 40 cents may be taken as having remained fairly stable for the past 90 days.

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Advance in the price of staples was so rapid and extensive that hedges afforded no protection. It is probable that little of the increase in values came out of the pockets of spinners, but heavy inroads were made upon the capital of merchants who had contracted to make deliveries.

The year ended with some commitments unfilled but the aggregate outstanding was probably insufficient to warrant apprehension. Certainly there are no indications of another flurry.

Fear of Shortage

Demand which sent staple cotton prices to such dizzy altitudes had its origin in fears that there would not be, because of weather damage, enough desirable cotton to go around.

Rains which were general over the belt started about the middle of October and continued, with only slight interruptions, for more than 30 days. Rainfall at Memphis during October was the greatest in the history of the local weather bureau, an institution which has been in existence since 1871. Precipitation was in excess of 10 inches against a normal of less than three inches. October, normally the driest month of the year, was the wettest. The unfavorable condition continued far into November, and with only moderate abatement to the first of the year.

Excessive moisture and temperatures above seasonal normal caused seed to sprout in the bolls. Lint exposed to the weather was injured in appearance, and much cotton knocked out of the bolls by the rains, became a total loss.

Buyers Not Exacting

Within certain limits the buyer looking for cotton of desired length of staple has never been as exacting in regard to grade as to staple. He has probably inclined to be more liberal this season than usual because of well-recognized conditions. Yellow tinges and stains are due usually to the action of frost on unopened bolls. Little of this kind of cotton has appeared on the tables this year. Not much blue cotton has come out of the crop of the 1919 growth, but very much of it was of the light grays. In his eager quest for desired length of staples the buyer is more than ever disposed to overlook minor defects in color and grade. The bloom, so pleasing to the eye of the experienced buyer is lacking, but light grays as a rule do not point to impairment of strength of fiber.

Much cotton was ginned wet. This causing neps and gin-cuts, has caused much trouble. Warnings were issued but, owing to the anxiety of growers to take advantage of the price bulge, warnings were more often honored in the breach than in the observance.

Owing to the fact that killing frost was late, occurring over the belt from Nov. 12 to 16, and the absence of a top crop due to boll weevil activities, the crop of bollies was small. Bollies carried from previous crops have lately been good sellers. Some bollies which a year ago went begging without finding a buyer at 10 cents sold recently at 24 cents. Immature cotton is not very desirable for spinning purposes regardless of length of staple. It makes weak yarn and a large percentage of waste.

Weather Damage Large

Long staple districts within Memphis territory suffered probably more weather damage than any other section of the belt. These areas, as already indicated, produce about half of all the staple cottons grown in America, or something like 700,000 bales annually. While 70 per cent probably of the total American crop, long and short, will be of tenderable grades, it is not likely that more than 40 per cent of the staples could be classed as white cottons.

The Florida peninsula has been devastated by boll weevil and other Sea Island territory is being gradually invaded to the menace of the very existence of the Sea Island cotton industry. South Carolina reported boll weevil the past year for the first time in history. Effort to increase the production of American-Egyptian cottons in California and Arizona, to make up for the dwindling prospects for Sea Islands, contracted rather than expanded during the past year. Boll weevil and army or leaf worm, greatly interfered with the Texas, Oklahoma and Louisiana yield of staples.

Exact statistics are not available, but a somewhat recent estimate of the United States Department of Agriculture, bureau of crop estimates, indicates that the proportion of long staples, including uplands, Sea Islands and the Egyptian types, to the total growth including short cottons, is, of staples measuring 1⅛ inches or over, approximately 12 per cent, distributed by states as follows: South Carolina 11.5, Mississippi 49.7, Louisiana 4.0, Texas 7.6, Arkansas 24.0, Oklahoma 17.0, California 23.2, Arizona 40.0, and all all other states 2.7.

The average pre-war price of long staple uplands was around 43 cents in 1917 for length 1¼ inches or over, and 30 to 35 cents for 1⅛ to 1¼ inches. Sea Islands at that time were bringing 70 cents and upwards.

Peak prices were reached during the first ten days of November, 1919. Sales at 75 to 90 cents a pound for round lots were not unusual. The first picking from a single plantation brought half a million dollars. Basis was entirely lost sight of. No one seemed to know what staples were worth, but only that desirable lengths of good color and grade were eagerly sought, and that price was a secondary consideration. Cotton, presumably middling uplands, is said to have attained a price of $1.90 a pound in New York in 1864. But the price, whatever it may have been, represented no transaction of importance in volume. The production of American cotton had all but ceased. There was not enough cotton in existence for prices at that time to be compared with present day values.

The edge went off the market with the filling of November and October commitments. Since then there has been very little demand for cotton measuring less than one inch in length, even where the grade and color were good. Low grade short cotton was hard sale, but the staple market continued firm. Any cotton of good color and staple, commanded, and continues to command, about its own price. Low grade cottons with a pull have been very much easier to sell than any short cotton regardless of grade or color. Beginning with scant 1⅛ inches just enough to get within the staples class every 1-16 more calls for heavy premiums. Quotations on staples, necessarily, are based upon type or sample, and therefore, even with the sample at hand, may not always mean the same thing to any two persons. As a matter of fact no two bales of cotton are exactly alike.

Size of Current Stocks

Estimates place the unsold stocks of staple cottons on the Memphis market at 75,000 bales, of a total stock, sold and unsold, of 244,000 bales without linters. Most of the stock of staples is of low grade. One firm with a stock of 5,000 bales of staples had only 53 bales they could offer for better than low middling. It was conservatively estimated at Jan. 20, that a thorough combing of the market would disclose less than 2,500 bales of long staple white cotton.

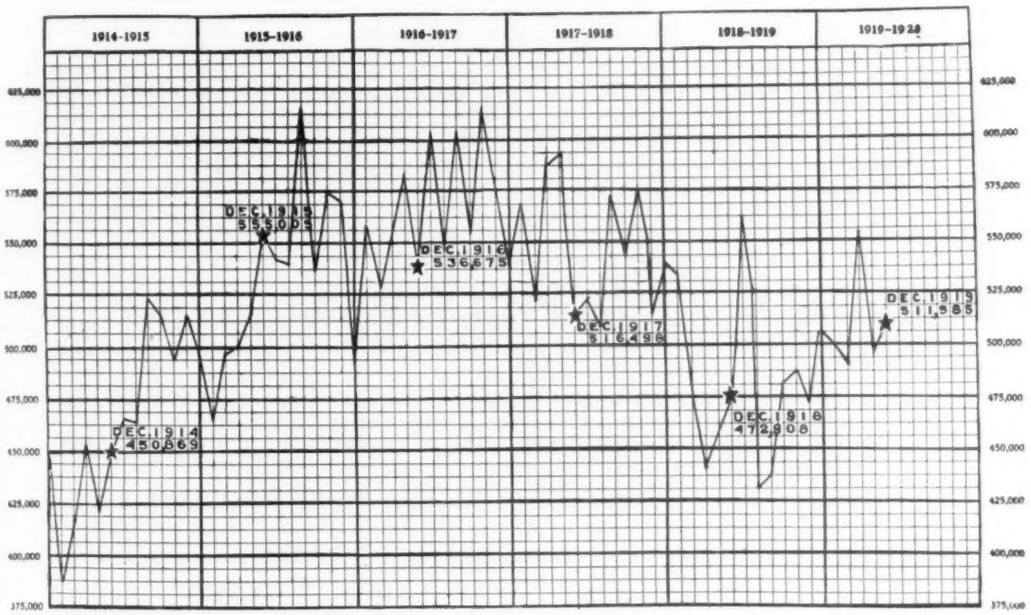
Current prices, based on sales of staples, range from 31 cents to $1 a pound, with the bulk of the sales being made around 60 to 80 cents. Recently a lot of 300 bales good ordinary 1 1/16 inches, sold at 37 cents, and on the same day a lot of 180 bales, middling to strict middling, 1 5/16 to 1⅜ inches of which 100 bales were middling, changed hands at 90 cents.

On a basis of 40.50c. for middling uplands, middling staples, according to average opinion, were quotable as follows: 1 1/16 staple, 540 on; 1⅛ staple, 2425 on; 1 3/16 staple, 3450 on; 1¼ staple, 4100 on; 1 5/16 staple 4800 on.

Differences officially quoted by the Memphis Cotton Exchange at Jan. 20 on a basis 40.50c. for middling uplands were: Points on middling, strict middling 100, good middling 200, strict good middling 275, middling fair 350. Points off middling, strict low middling 200, low middling 700, strict good ordinary 900, good ordinary 1100, good middling, yellow tinged 375; strict middling, yellow tinged 400, middling, yellow tinged 500; strict low middling, yellow tinged, 650; low middling, yellow tinged 900; good middling, yellow stained 575; strict middling, yellow stained, 600; middling, yellow stained 700; good middling, blue stained 500; strict middling blue stained 600; middling, blue stained 900.

Stocks at surrounding towns are in keeping with Memphis stocks of cotton. Staples have been snapped up. Short cotton goes begging. This condition is likely to continue until altered by the next or some future crop. Enlightened opinion has no illusions concerning prices, causes of their present exaltation and the permanency of existing levels. Growers are not holding and investment cotton is a rarity. Cotton is being sold as rapidly as buyers can be found at market prices, but there is no pressure to sell. Owners are confident rather than bullish. That the disposition to hold is not pronounced is indicated by the in sight movement which shows an increase of 600,000 bales compared with last year, notwithstanding that the crop is at least 1,000,000 bales less than that of 1918. The visible supply has increased 1,000,000 bales. These figures indicate a reduction of about 800,000 bales in the carry-over at July 31, provided no change in the rate of consumption occurs during the remaining months of the fiscal year.

Over-production is not now feared as it was a year ago. There is no talk



CONSUMPTION OF COTTON (EXCLUSIVE OF LINTERS) IN THE UNITED STATES

Charted by Merchants' National Bank, Boston

The above chart is based on the monthly cotton consumption statistics issued by the United States Bureau of the Census.

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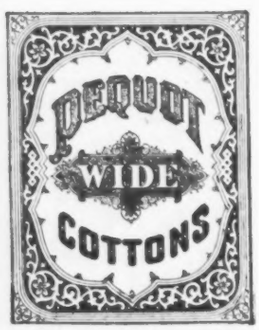
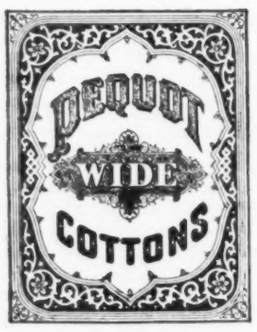




of attempting to regulate acreage, although diversification may be preached with renewed emphasis, and farmers will be urged to make adequate provision for food crops, as the one means by which the cost of producing cotton can be kept at a relatively low level. The large carry-over at the beginning of the present fiscal year was mostly of low grades. Time, extending maybe over a series of years, may be required to reduce stocks of low grades to something like normal proportions. Desirable grades, it is argued, will continue in good demand at profitable prices. In the circumstances, and considering his present financial condition, the cotton grower is excellently situated for gradually reducing the present over-supply of low grades.

Whether warranted or not the grower and the cotton merchant are thanking manufacturers of automobile tire fabrics for the phenominally high prices being obtained for staples. Prof. John A. Todd, professor of economics, Nottingham University College, England, addressing the World Cotton Conference at New Orleans estimated that automobile tires demand 500,000 bales of staple cotton annually.

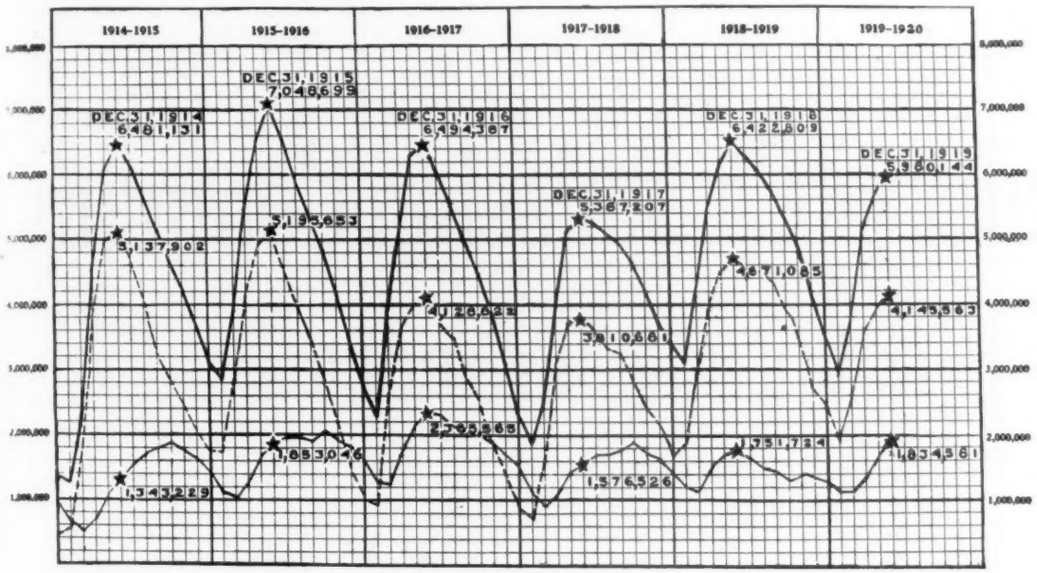
There is evidence enough to warrant the belief that progress in the way of improving grades and staples is gaining momentum, and the present over-supply of low grades is helping in no small measure. Future development in the Salt River Valley of Arizona, the Imperial Valley of California, and elsewhere in these two states where success has already been achieved in the production of long staple cotton remains to be seen. The Alluvial Empire, of Arkansas, Mississippi and Louisiana to which reference has already been made contains, it is estimated, 25,000,000 acres of lands suitable for growing staple cottons. Only one-third of the said acreage has yet been put to useful purpose.

Preparations for New Crop

Preparations for the new crop are now assuming tangible form. Compared with last year acreage will be increased. Allowing for abandoned acreage approximately 33,000,000 acres were picked for the 1919 crop. Farmers will probably plant every foot of cotton land possible. Labor is scarce, but one man can plant and cultivate as much cotton as half a dozen hands are capable of picking. Chance will be taken on being able to hire pickers when they are needed.

The greatest acreage ever planted, 37,207,000 acres, Department of Agriculture estimate, was devoted to growing the crop in 1918. The production was only 11,906,000 bales. In 1915 only 31,412,000 acres produced nearly as many bales as were ginned in 1918. The record crop, that of 1914, which produced 15,906,000 bales was grown on less than 37,000,000 acres, and that of 1911 which was 15,553,000 bales was grown on 36,045,000 acres.

While the record maximum acreage may not be exceeded for some years to come, there is every reason to expect a substantial increase compared with wartime acreage. Production of lint has varied from 157 pounds to 224 pounds per acre.



STOCKS OF COTTON (EXCLUSIVE OF LINTERS) IN THE UNITED STATES

Charted by Merchants' National Bank, Boston

The above chart is based on the monthly cotton stock statistics issued by the United States Bureau of the Census. The lowest curve (light solid line) shows the stocks in consuming establishments. The middle curve (broken line) shows the stocks in public storage and at compresses. The highest curve (heavy solid line) shows the total stocks, including both those in consuming establishments and those in public storage and at compresses.

Perplexing Year in Cotton Wastes

Rise in Cotton Alone Saved Dealers from Loss—Year Opens and Ends Quietly

THE cotton waste industry ends the year having done a fairly good business, but not quite the equal of the preceding year. The textile depression which followed the signing of the armistice was felt in this market and the year opened quite easy, with combers and strips passing in small volume and flat priced stocks neglected. Cotton, the staple, was selling at this time around 30c., and contracts were placed at fairly high percentage figures for the year. In the opinion of leading factors, the rise in cotton value alone has prevented dealers from assuming serious losses on this grade of material. The feature of the year has, of course, been the strong upward movement in cotton, which at 40c. represents a 25 per cent. advance for the year. This rise naturally brought about enhanced values in all classes of wastes with the exception of oily cards and similar materials.

These low grade stocks are being carried in large quantities. Their natural outlet is Continental Europe, and owing to dilatory tactics in the signing and ratification of the Peace Treaty at Washington, coupled with high freight rates controlled by the Shipping Board, export business in these commodities has been at a minimum. The present ocean freight is about 3c. per pound, and this is prohibitive in low priced materials. A further factor has also to be taken into account, and that is the low exchange prevalent in Continental Europe, which makes it the poorest market in the world to sell anything of American growth or manufacture. These low grade wastes, however, are beginning to flow into Europe from China and Japan and also from England. Japanese goods are carried in Japanese bottoms and Chinese in British steamships.

Wastes a Complex Proposition

The distinction that has been so marked during the year in fine and low wools, high grade and low grade fabrics, has but little application in this market. The by-products of wool manufacture find their natural markets within the same industry; but the outlets for cotton waste materials are industries that bear very little relation either to each other or to the primary market. Combers, rovings, spinners and similar stocks are of course utilized, to a large degree, in the cotton industry itself; the woolen industry also takes these materials, along with strips and card wastes; pickers and flies and similar materials go into mattress making; threads in various conditions and colors are utilized in wiping and packing. There is, therefore, little relation existing between the consuming markets of this industry, and the demands of these markets are quite dissimilar to the parent industry. These features add complexity to operations within the cotton waste market proper.

Egyptians Plentiful in 1920

Egyptian combers and strips have not been very plentiful during the past year, but the outlook for the next year is that they will be found in great abundance. Large quantities of Egyptian cotton are being imported and several mills have contracts running into millions of pounds for tire yarns. It is said that at least 250,000 bales of Egyptian cotton are to be brought in, against a normal import of from 80,000 to 90,000 bales. The yarns, it is understood, will be spun 18-24s and will be from 10 to 12-ply. This market may therefore anticipate a greatly increased production of Egyptian combers and strips, and as machinery will be diverted from high grade domestic cotton, it is not unlikely that peeler combers and strips will be scarcer this year. The natural inference, therefore, would be that Egyptian materials will be easy in price, while the best domestic wastes will move higher, assuming that a normal demand exists.

Spot cotton for several weeks has been pegged around 39c., and the various consuming markets are becoming accustomed to the high prices demanded by waste dealers. One leading cotton corporation affirms that it never had so much material sold on contract as today, and, this being the case, it is quite evident that the purchasing members of the Cotton Waste Exchange look for higher prices in order to market their holdings.

In the early part of the year inactivity was the distinguishing feature of the market with hand-to-mouth buying on the part of consumers. Stocks were piling up and some of the smaller houses, without strong financial backing, were feeling the strain. Exchange meetings were quiet, poorly attended and uneventful. The intrinsic value of the various wastes was subordinated to the law of supply and demand. Shipping rates at this period were 3½c to England, which, of course, was quite prohibitive for low priced material. Gun-cotton linters, a complete drug on the market owing to large release by the Government were selling at 3c. The market in cotton waste was about as near being defunct as any market could well be, but depressive conditions were believed to be nearing an end. Percentage stocks were holding up fairly well, but combers and flat priced stocks were sagging to lower levels. Storage conditions were becoming acute. The statement made by the Bureau of Standards that gun-cotton linters could be used for paper making was not generally credited.

Market Improves in May

Sentiment became a little more optimistic about the middle of May, and dealers began to view the market as a satellite of the great woolen and cotton industries which were experiencing a marked improvement in business. The rising price in cotton had by this time augmented considerably values of the large stocks held by dealers, but was, nevertheless, embarrassing others who had to take in wastes on contract at higher prices than their consumers would pay for the same. The mattress manufacturing industry continued dull with the call for willowed pickers and flies quite limited.

Improvement in the export business was noted in July and in the domestic market increased strength in cotton led most dealers to advance their asking

(*Continued on page* 281)

Cone Export and Commission Company

GREENSBORO, NORTH CAROLINA

AND

61-63 WORTH STREET, NEW YORK

Southern Cottons

Canton Flannels
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Cheviots
Cottonades
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Khakis
Mottled Flannels
Outing Flannels
Plaids
Sheetings
Shirtings
Tickings

FOR DOMESTIC AND EXPORT TRADE

Union Warehouse & Compress Co.

(*Continued from page 218*)

favorable outcome of these, a new warehouse will be constructed on the water front in the Norfolk district.

At Raleigh, North Carolina, a plant will be constructed of ten thousand bales capacity.

At Greensboro, North Carolina, a twenty thousand bale warehouse will be taken over, the plant of J. E. Latham being under option for this purpose.

At Charleston and Columbia, South Carolina, are the compress and warehouse plants of W. Gordon McCabe & Company. These will be taken into the Union Warehouse and Compress Company scheme of development, enlarged, standardized and brought up to a storage capacity of fifty thousand and twenty thousand bales in the two cities respectively. At Columbia, also, is the principal warehouse of the Standard Warehouse Company, which will be taken over.

At Spartanburg and Greenville, South Carolina, the plants of Cooper & Griffin will be absorbed and extended. The storage capacity will be forty thousand bales at Greenville and thirty thousand at Spartanburg.

The Rock Hill, South Carolina, warehouse will be purchased, and extended to a capacity of twenty thousand bales.

Passing into Georgia, the first property to be considered is at Savannah—an essential point owing to the importance of its harbor and its shipping facilities. A capacity for the storing of two hundred thousand bales and the installation of corresponding compressing facilities will be needed at this port. This will be accomplished by the purchase of the warehouse and compress plants now located there, except those owned by the Savannah Warehouse and Compress Company, and the installation of a new unit of one hundred thousand bales capacity.

At Augusta, a forty thousand bale plant will be necessary, and the Union Warehouse and Compress Company has secured a site suitable for such a warehouse. At Augusta, too, is one of the plants of the Atlantic Compress Company which will be taken over.

Atlanta is one of the most important gate cities of the South. In addition to purchasing the plant of the Atlantic Compress Company situated there, a new site has been determined upon where a warehouse of one hundred thousand bales capacity will be constructed.

There is an Atlantic Compress plant at Athens which will be bought and a new warehouse for twenty thousand bales built on adjoining land. Much the same thing may be said of Albany, Columbus, Dothan, Dublin, Rome, Millen and Thomasville, Georgia.

Although Macon is an important cotton center and should have a warehouse capacity for storing forty thousand bales of cotton, the plans of the Union Warehouse and Compress Company do not contemplate operating in that city at present.

Mobile is, perhaps, the most important cotton point in Alabama. This is so on account of its splendid harbor and its importance as a shipping point. A storage capacity for forty thousand bales will be provided at that city. An important plant is coming into the combination. A new high density compress will be installed and extensive additions made to this plant. It will be standardized, modernized, and extended to the capacity noted for Mobile. The government and state improvement to the navigation of the Warrior River will add much to the prestige of Mobile, as it will link industrial Birmingham more closely to it and to deep water transportation.

Birmingham will be brought into the chain either by taking over the plant of the Warrant Warehouse Company or the construction of a new plant with high density compress. Whatever plant is decided upon for this city will have a capacity for storing twenty thousand bales and will, in addition, conduct a general warehouse business. It may be said, here, that at many of the warehouses to be purchased or constructed, other commodities will be taken for storage besides cotton

At Opelika there will be installed a compress and warehouse for twenty thousand bales.

At Selma, the plant of the Dallas Compress Company will be bought and its capacity increased.

The plant of the Atlantic Compress Company to be taken over at Montgomery will be increased to a storage capacity of twenty thousand bales.

It is expected that the compresses located at Cordele, Decatur, Huntsville and Moultrie, Alabama, will be taken over and their storage facilities materially extended.

At Greenville, Mississippi, it is proposed to take over an existing compress and install a warehouse in connection with it of twenty thousand bale capacity.

The storage facilities which are a part of the compresses to be purchased at Greenwood and Clarksdale, Mississippi, and Monroe, Louisiana, will be greatly increased in the early future.

Memphis is one of the most important points in the cotton belt. At this city it is the purpose to buy an existing plant, or to build a new warehouse and equip it with high density compresses. The capacity of the plant will be not less than one hundred thousand bales.

At Shreveport, La., new construction will be undertaken of a warehouse of twenty thousand bale capacity. This will be operated in conjunction with a compress plant at that city, which is to be purchased.

At New Orleans the Union Warehouse and Compress Company has no plans on foot, as the plant belonging to and operated by the city adequately serves that port.

At Little Rock and Pine Bluff, Arkansas, the compress and warehouse plants belonging to the Newburger and Lesser-Goldman interests will be purchased and storage added to a capacity of thirty thousand bales at each city.

The storage facilities of the compresses now owned by the Lesser-Goldman interests at Fort Smith, Helena, Newport and Texarkana will also be extended.

East St. Louis is one of the cotton gateways, and an important trans-shipment point. Here the Lesser-Goldman warehouse will be purchased and extended to a capacity of forty thousand bales, with adequate provision for a general storage business.

Turning now to Texas, the state that produces thirty per cent of all the cotton grown in the country:

At Terrell, the largest primary market for cotton in the state, it is the purpose of the Union Warehouse and Compress Company to buy or install a compress and warehouse plant of twenty thousand bales capacity.

At Waco, Texas, the Dossett compress and warehouse interests will be acquired and increased to a capacity of forty thousand bales.

The Union Warehouse and Compress Company will make no present investment at Dallas because of the independent warehouse movement now on at that city.

By the side of the turning basin of the Houston ship canal, it is proposed to construct a warehouse of fifty thousand bales capacity, equipped with high density compresses.

At Texas City the existing compresses will be taken over and a warehouse built on deep water front for storing fifty thousand bales. This plant, designed for long term storage, will operate in connection with the Houston plant which will be used more especially for transient cotton.

In addition to the warehouse and compress sites already enumerated there will be others installed as occasion demands.

Primarily for Benefit of Producer

It will be noted that all of the developments contemplated by the Union Warehouse and Compress Company are at the large centers or concentration points. It must not be concluded, however, that these will in any way conflict with the smaller warehouses used by the farmers at interior ginning points. The farmers' warehouses will feed into the bigger warehouses of the Union Warehouse and Compress Company in the South, and thence to the northern warehouses of the company and to vessels for export at terminal ports.

Without the co-operation of the producer of cotton, the chain of warehouses under consideration could never be a success. It must rely upon growers to use a large percentage of the storage space it proposes to make available. It is its intention, therefore, to retain from seventy-five to eighty per cent of its available space, where the location permits, for the use of the producer till such time, each year, as the season's crop has been harvested and warehousing arrangements perfected for such portions as it is intended to store. After that the facilites will be thrown open to the general market—for cotton belonging to the northern spinner, for export, and for the storage of other commodities besides cotton.

Cotton Financing Company

Cotton warehousing and cotton financing go hand in hand. Indeed, the two phases of the industry cannot well be separated. With this in mind it is the purpose of the Union Warehouse and Compress Company to immediately organize the Union Discount Corporation. This corporation will be created for the purpose of buying and selling cotton acceptance paper, thus creating a broad demand for paper whose market, under present conditions, is largely restricted to the locality where it originates. It is proposed to distribute the stock of the discount corporation widely among banking interests, in the cotton belt, and in the North.

Under the dual system of warehousing and financing cotton, several notable things will be accomplished, making for improved conditions in the cotton trade and the stabilization of cotton prices. The farmer will be benefited by being able to carry his cotton over a longer period. The grower or shipper, when storing cotton in a bonded warehouse, will obtain a receipt which will be excellent collateral in case it is desired to hold the cotton for a better market. Such a receipt, being negotiable and guaranteeing weight, can be converted into cotton can be dealt in between persons entirely unknown to each other and rejections will cease. The producer will have everything to gain and nothing to lose by the proposed system. The spinner will likewise benefit, his chief gain being the large supplies of cotton assembled at concentration points, thus insuring him against a scarcity of raw material, due to seasonal transportation difficulties and other obstacles. Last but not least, bankers will be supplied with a large amount of the most liquid and highest grade paper, acceptance and cotton.

Cotton men are nearly unanimous in saying that, with the development of the plans of the warehouse and discount corporations a revolution will be effected in the handling of cotton. Under the plan outlined it is believed that the necessity for crowding the handling season into three or four short months will be overcome; that a period of twelve months may easily be taken in the operation, thus making for more economical work. It is believed, as weil, that the inauguration of the dual system of warehousing and financing through cotton acceptance paper will be a godsend to the small banks of the South,, with whom it is always difficult to meet the quick requirements of the short moving season.

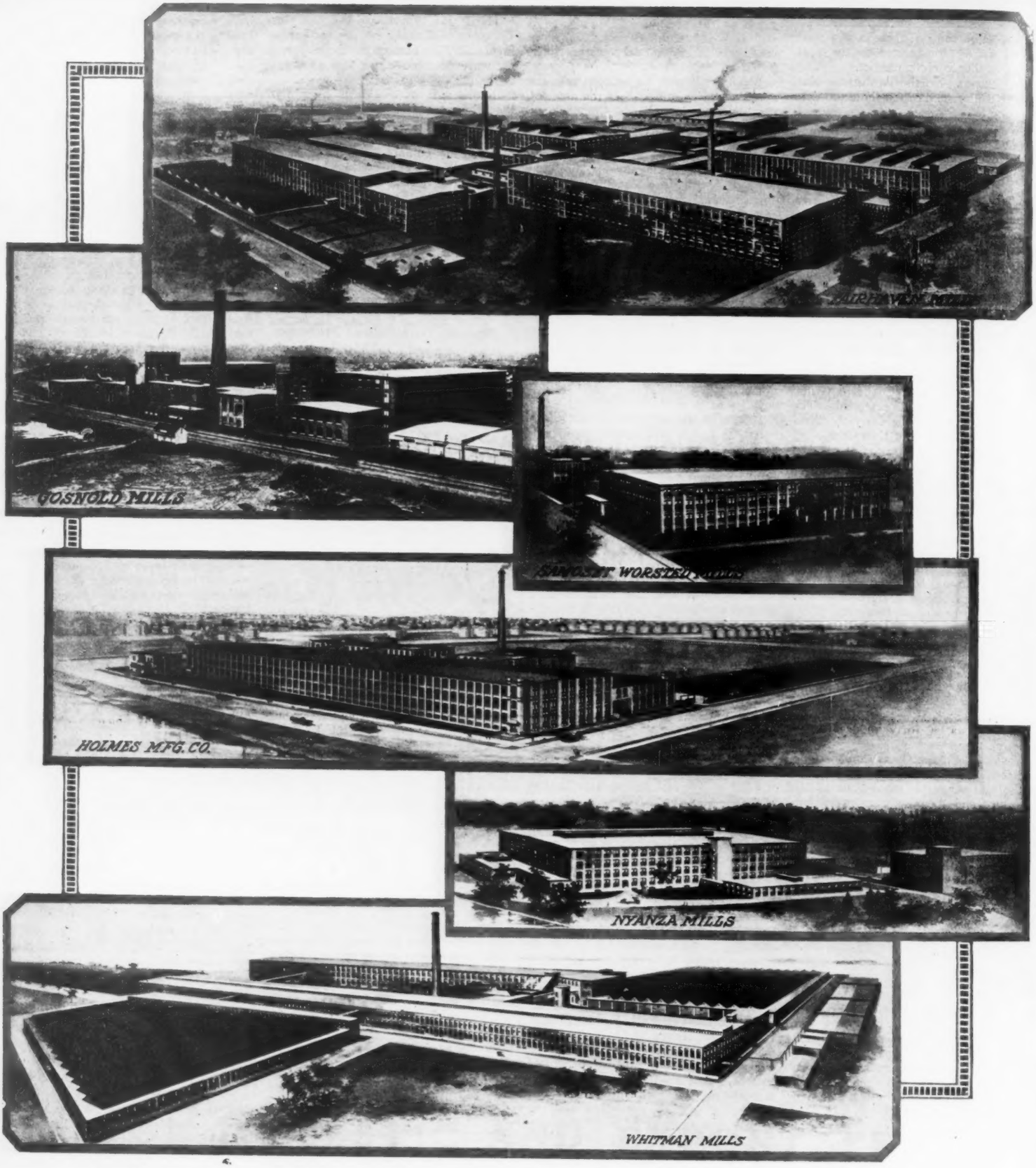
Yarn Exports to Argentine

(*Continued from page 221*)

the requirements of the foreign consumers. I believe the American spinner can compete successfully with other nations, but he must realize that in order to do this, he must meet their reasonable requirements. There is no use trying to blink the facts. American business methods and American goods and packing have in many instances been severely criticized and justly so. On the other hand, I encountered frequently, business men with most friendly feelings toward "things American," and who did not hesitate to express their admiration for many American "lines," and their wish to confine their purchases to the U. S. A., but we must give them what they want. And if manufacturers will realize this and act up to it, the possibilities are very great.

Comparisons of Packing

There has been so much written about the bad packing of merchandise from the U. S. A. that it would appear almost superfluous to waste ink and paper rehearsing this subject, but a concrete example will be, I think, illuminating. The accompanying photos represent an English bale and two American bales, and I saw hundreds like them and none better, containing yarn. These pictures speak for themselves, but to a limited extent only. The facts are still more instructivo. The English bale contains 500 lbs. of yarn, the American bales 400 lbs. The yarn in the English bale is neatly packed in 10-lb. bundles, which under the method in use in the foreign city of distributing the yarn to the employes, greatly simplifies the work, whereas the American yarn is in bulk, and has to be reweighed and cannot be distributed in the same manner. As will be seen from the picture, the English bale is of new clean jute, hoops strong and intact, so that the yarn arrives as clean as when packed. The American bale, on the other hand, is of old, second-hand jute, badly strapped so that the bands frequently fall off and the bales arrive torn and the yarn dirty.



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owing to the poor quality of the jute and the insufficient paper packing inside the outer jute covering. Furthermore, the shape of the American bales makes it difficult to pile them up in the warehouse, and the foreman in one of the factories told me that he was obliged to use lumber to stack up the bales and keep them from falling down. In addition to this, the English bale of 500 lbs. measures 12 to 13 cubic feet. The American bale from 19 to 20 cubic feet. This, of course, increases the ocean freight charges, which on the basis of above measurements, and at the present freight rates, means an increase in cost to the foreign consumer of over 1c. per pound, the freight on the American yarn thus baled, being double that of the English, 5 cubic feet per 100 lbs., as against 2½ cubic feet for the English packing. Such a difference is quite sufficient to prevent American spinners from obtaining competitive business.

It does not seem as though the packing of yarn in bales is such a difficult or complicated process, that the American spinner cannot do it quite as well as his European competitor, *if he will take the trouble*. The question is, whether he is willing to give the matter the proper study and attention, or will he go along in the old happy-go-lucky fashion, and not listen to reason, as he has so frequently done in the past.

I remember very well receiving not long ago a letter from an American manufacturer (not of yarn) to whom it had been suggested that he must make some changes in his particular article of manufacture in order to meet the requirements of the South American buyer, in which he wrote as follows: "I note from your letter of ——— that you advise me it will be necessary to accommodate myself to the requirements of the South American customer and make certain changes if I wish to do business in that country, which I positively refuse to do." And yet that manufacturer was offered business amounting to thousands of dollars if he would make a small alteration, quite feasible in his machine, which alteration was absolutely necessary owing to conditions in the foreign country. Can the foreigner be blamed if he sometimes criticizes American manufacturers and their disinclination to adapt themselves to foreign conditions?

Marks Confusing

One further remark with respect to the export of yarn. Buyers abroad complain that the bales which they receive are so covered with numbers and marks, and these often so indistinct that when they are received at destination, it is difficult to sort out the bales belonging to different receivers. The spinner puts his particular mark on the bale, the New York agent of the mill has his mark, and in addition frequently the name and address of the exporter, and finally the exporter has to mark the bale with the number, designation and destination required by the foreign buyer. The result is a bale tattooed with various marks, and a consequent confusion in the custom house at destination which causes such annoyance to receivers, especially when, as is often the case, the exporter's mark, put on by the mill, is almost illegible, owing to the bad manner in which it is done. I have known of cases where bales were discharged at the wrong port owing to the great number of marks on, and the defective manner of marking the bales. This is not the case with the foreign bales.

Quality, exact numbers and twist, packing and marking; if the American spinner will give these matters careful study and give the buyer abroad what he wants and can obtain from European spinners, he will, I am convinced, be able to hold a large part of the business which war conditions have thrown into his hands.

The foreign consumer has opened wide the door to the American producer; the prestige of the U. S. A. has been to a remarkable extent enhanced by a recognition of their tremendous power and resources and the "great things they have done" have awakened feelings of respect and wonder in the minds of many South Americans. They stand ready to meet us half way, and only ask that we give them that fair treatment and consideration which every honest man and merchant should accord his neighbor. The question is, will we be equal to the occasion or will we settle back into our pre-war self-sufficiency and lose the golden opportunity which chance has thrown our way?

Textile Property Values and Federal Taxes

(*Continued from page 223*)

missible in this contingency, inasmuch as such appraisals are conducted upon the basis of reproduction or replacement costs, are not substantiated by the records of cost to the particular company in any respect, and are in fact not acceptable by reason of the fact that the use of such appraisals contemplate the taking up of appreciation on the book values.

Combination of Audit and Appraisal

After an exhaustive study of the entire problem it becomes evident, however, that some combination of the audit and appraisal theories must be effected in order to substantiate these adjustments to the book values. Such a combination has, in fact, been effected, referred to the representatives of the Department for approval, and has been demonstrated to be a satisfactory solution of the entire problem in specific cases.

The service performed in this connection in the field of textile organization has been of great advantage to these companies, since it has definitely established the problem of plant values from an investment standpoint, as well as of annual charges against operations representing current depreciation. An equitable solution of the problem of handling expenditures for equipment, the capitalization of which is to some extent optional, i.e., bobbins, harness, reeds, etc., has been satisfactorily worked out in such a manner as to most easily conform to the past procedure of the particular company and at the same time comply with tax regulations.

Description of Methods

The method followed in performing this service is carefully mapped out and requires the co-operation of engineers and accountants. In a particular case all the equipment of a textile plant is inventoried and assigned a cost value corresponding to the actual price paid by the company, plus freight and installation charged. Certain smaller items of equipment, the record of whose purchase cannot be definitely located upon the books, are assigned a cost value equivalent to the market prices and quotations on such items as of the date installed. Accrued depreciation upon all such equipment is then computed. This depreciation is not arrived at by means of cumulative yearly rates, but is based upon the combined factors of age, condition and probable future period of usefulness, as determined by experienced engineers, thoroughly familiar with textile machinery and equipment, and the method thus automatically takes care of all matters of rehabilitation of equipment through replacement of parts, renewals, etc.

The net figures resulting from this procedure furnish the basis for adjusting the plant and depreciation reserve accounts, subject, however, to such accounting matters as are affected, such as the treatment of items which are ordinarily charged directly to the expense accounts, possible corrections and adjustments in these expense accounts during years subsequent to the enactment of the Federal tax laws, and proper deductions for additions during the respective years.

The entire method is based upon the co-ordination of engineering and accounting technique, and is thus doubly fortified to present a solution that is entirely equitable and indisputable as to its accuracy and fairness to all concerned.

Responsibility Rests Upon Taxee

The textile organization whose book values do not represent the true depreciated-cost-value of its plant is, unless steps are taken to bring about a correct status of affairs, unquestionably inflicting upon himself a most severe and uncalled-for burden, and will continue to do so in future years.

The Department naturally cannot take upon itself the tremendous additional amount of work which would be necessary to insure every individual taxee against his own failure to accept remedies which it prescribes and authorizes. The Department has, in fact, made clear its attitude in Article 840 of the Regulations, which states:

"A corporation's books of accounts will be *presumed* to show the facts. If it claims that its capital or surplus accounts are understated, the burden of proof will rest upon it. Additions to these accounts will be accepted to the following extent, provided, etc., etc."

This clearly illustrates the necessity for the individual textile executive to consider well whether or not he has failed to submit his own case upon its real merits, and if he has failed to do so it certainly behooves him, in fairness to the owners and stockholders, to secure a reconsideration of his case, and to obtain such assistance as he may require in the matter from those who have made a thorough study of the entire subject.

Broadened Opportunities for Textile Schools

(*Continued from page 224*)

I wish to illustrate what I have been trying to point out by one very illuminating example which has been brought out by this work. A superintendent informed us that he was to put some leno work into his weave room; that none of his fixers understood this work, but that several were capable of picking it up very rapidly if given the opportunity. Inquiry disclosed the fact that other weave rooms had conditions similar to the weave room in this man's mill. It was a very simple matter for the school to organize a class in this particular work, and to give these men exactly the instruction which they needed, since the school was advised in advance, and nothing was included in the course of instruction that was extraneous to the needs of the men.

On the other hand, suppose an individual loom fixer had come to the school and asked to be taught leno fixing in the evening classes. In the majority of cases he would have been obliged, in order to secure the instruction he particularly needed, to have taken considerable work extraneous to his needs, and which could not but have tended to dull his enthusiasm as well as his appreciation of what the school had to offer.

It is, to the writer, practically self-evident that such co-operation between the mill and the school, wherein the mill points out the needs and the school seeks to fulfil those needs, must result in a very much increased benefit to every one concerned.

Must Provide Practical Experience

Coming finally to that student who is able to devote his entire attention, for a considerable period of time, to acquiring the intricacies of textile manufacturing, I refer to the day student, the textile schools of Massachusetts are offering and giving courses which, with the schools' present facilities, I believe to be of very material benefit. But here again we see the need of closer co-operation between the mills and the schools. For several years I have seen the vital need of such students supplementing the theory obtained in the school by the practical experience obtained only by actual mill work. Such practical experience the schools, equipped as they are to-day, are unable to give. It is left to the student to obtain this work either after he has completed his school work, or during the summer months when the school work is suspended. In either case the results cannot be as beneficial as they would be were the work in the school and the work in the mill more closely correlated. A mill, fully equipped, turning out commercial product, and forming a part of the school unit, in which the students could be given regularly assigned tasks to round out the instruction given in the school itself, would certainly be an arrangement very much superior to the present one. It is to be doubted, however, whether such conditions can be brought about, and a simpler, and possibly a better, method would be for the mills themselves to give to the students of the schools this practical experience during the time that the student is following his studies, the work in the mills to be so shaped as to supplement the work of the school.

Students on Mill Pay Roll

Personally, I believe it to be the self-interest of the mills to go even further than this, and select from their organization one or more young men who have shown particular ability while in their employ, and offer to such the advantages of a textile education in the day classes of one of the textile schools, a part of the course outlined for such a student to consist of practical work in that mill which gives him the advantage of the school instruction.

I firmly believe that it would mean a tremendous advance to the textile industry of this country if each mill of any size would adopt the policy of having at least one member of its organization undergoing such training. Such a policy would tend to attract to the industry many young men who to-day are seeking other and less profitable and less essential occupations. It would train up a body of men who would be

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capable, in a few years, of filling those positions which many mills to-day are finding it difficult to fill, and which, otherwise, will be far more difficult in the future to fill. It would serve better than any other means to bring the school and the mill into that close association so essential to both, and to bring the great textile industry of this country to even a greater degree of efficiency.

In those textile centers, in which are located the textile schools, the mills by adopting such a plan, would bring the evening work of the school into very close association with that of the day department, since the opportunity of day schooling, made possible by the mill continuing the boy on the pay roll, should not be offered to any employe who had not previously shown his worth, both by work in the mill and work in some evening class of the textile school.

Put It on Competitive Basis

Each mill should make this opportunity a matter of competition between boys within certain ages, work in the evening classes of the school to be a large factor in determining the winner. Let the boy feel that he has won something by his own individual efforts, both in the mill and in the school; do not, by all means, give him the impression that he is being handed a gift through the generosity of some manufacturer. Moreover it must be understood that the boy, given this opportunity, cannot be obligated to stay with any particular mill for any definite length of time. The boy must be free to select his employer at all times. Here, however, the school should play a large part and instill in such students a sense of loyalty, impressing upon them strongly that such work, in order to continue and grow, after once started, must have the loyal support of at least those who are benefiting by it. Frequent re-unions of these men, after they have finished their school work, will be an added means of keeping them in touch with the school and its ideals. Moreover, no mill should approach this problem from an eleemosynary standpoint. If it cannot be considered as good business, and entered into simply because it is good business, then it would far better be left severely alone.

How Isolated Mills Can Co-operate

In touching upon this matter of mills offering to selected boys the opportunity of instruction in the day classes of a textile school, reference has been made largely to those centers in which are located such schools. No good reason exists, however, why mills situated at a distance from the schools should not make the same offer to certain of their employes and, providing a boy's record in an evening school teaching textile work is considered of sufficient importance in making the selection, then the mill itself should conduct such classes. It is a mistake to believe that an expensive building, equipped with expensive machinery is a necessity for such work. Many evening courses, dealing directly with mill work, can be given with no other equipment than a room and a capable instructor. A number of mills today are using such equipment with which to arouse the interest and the ambition of their workers. If they would go a step further and say to those, studying in their evening school, that there would be given to the one showing the most promise, the opportunity of following a day course in some recognized textile school, there cannot be much question as to the added interest that would be aroused.

Fall River Manufacturers Endorse Plan

During the Spring of 1919, the textile school at Fall River sought to interest the manufacturers of that city in a plan whereby at least one boy from each mill would be given the opportunity of taking day work in the school, such boys to devote their entire time to the school work for a certain number of weeks, and to remain on the pay roll of the mill. With a view to learning the sentiment of the men in executive positions, all the mill superintendents and a large majority of the treasurers were interviewed. The plan met with general approval, the executive committee of the Manufacturers' Association recommending that it be adopted by the mills of that association, which comprises the large majority of the textile plants in the city.

It was the intention of the school to have made a start on this work with the beginning of the term last Fall, but the number of students entering for the regular courses was such as to fully occupy the instruction staff of the school and any additions to the staff that the school's appropriation allowed to be made.

The response, however, that is being made to this work, is, I think, very well evidenced by the fact that, although the school has not as yet stated that it was prepared to handle such special students in the manner that they should be handled, seven boys have been enrolled from five of the local mills. It is expected that, with the opening of another school year, the school will be in a position to invite such students and when that time comes I, personally, do not question the result.

To Insure Textile School Permanency

Campaign to Secure Endowment Fund of $2,000,000 for Permanent Home

By a Staff Correspondent

THE importance of a technically trained personnel in the proper development and growth of the textile industry has won an ever-increasing appreciation from the leading factors of the industry within recent years. Particularly is the call for men trained along practical lines, and yet those who know the technique of the industry in all of its phases. The need for such knowledge and skill was most emphatically developed under the stress of the high pressure upon the industry to furnish materials for war equipment, and now, with the industry facing a demand for products far in excess of its present ability to satisfy, this importance of the trained man is all the more strengthened. He is the man upon whom responsibility can be placed; who can fill executive positions and direct the work of others with confidence and skill. The world is calling today upon the textile industry for increased production in fabrics and goods of every description. The industry in turn calls upon the textile schools for an ever-increasing production of men trained along practical lines in the art of textile manufacturing.

The Philadelphia Textile School has always been recognized as a prominent institution in the technical training of young men in the various processes of textile manufacture. It has taught them to know how to perform the various phases of manufacturing, whether it is handling the raw product or turning out the finished goods, and it has also taught them thoroughly why each of the steps is necessary to secure the desired results. The results of such training are readily shown in the success which has marked the career of former students, a large number of whom occupy positions of responsibility in the industry in all parts of the United States, as well as the world.

Origin of the School

The Philadelphia Textile School was established in 1884 by a group of the most influential and progressive members of the Philadelphia Textile Association,—the nucleus of the present Manufacturers' Club. During its career of 36 years, it has enrolled some six thousand pupils, who today are to be found in almost every textile center of the world, including many of the leading factors of the domestic industry. Naturally, with such a potent force working for the advancement and development of the textile industry here in America, in maintaining its proper position in competition with the world, it must needs have filled a most important part in bringing the industry of this country to its present commanding rank.

The value of the training received by its students, and its full appreciation by the industry at large, are being demonstrated constantly by the frequent calls upon officials of the institution for men trained to perform certain responsible duties. As a matter of fact, the demand for such men is far beyond the abilities of the school to meet. That this situation has been realized is indicated by the ever-increasing number of high-class young men who have applied for enrollment in its courses. Many of the large textile concerns in and around Philadelphia have for years enrolled a number of their employes in the night classes for special work on certain phases of manufacturing. This has resulted in a growing problem with the school authorities because of their lack of proper facilities to meet the demands made upon them by those desiring the practical training offered.

School in Demand

Before the opening of the present school year it was estimated that 400 would be the maximum enrollment which would permit good results. This figure proved to be entirely too low, as 550 pupils were enrolled in the day and evening classes, with as many more applications refused because of the lack of proper accommodations. This situation has brought matters to a focus. For a long time efforts have been made to provide adequate facilities which would permit the Philadelphia Textile School to fulfil its proper part in the future growth and expansion of the textile industry of the country. It was felt that some definite action was absolutely necessary.

Plan for Support

No greater testimonial of appreciation and gratitude for the benefits received from the training at this institution can be shown than the enthusiastic interest which the Alumni Association of the Philadelphia Textile School have manifested towards their alma mater. A group of active members and friends of the institution resolved to secure a suitable endowment fund which would insure the school of adequate support for its future growth, and at the same time provide ample quarters and facilities so sorely needed by the school and the industry. A plan has been evolved by which the sum of $2,000,000 will be raised by subscriptions. Because of the natural interest of textile manufacturers in the welfare and maintenance of this institution upon which they depend so largely as a source of supply for highly trained men for the successful operation of their plants, but also for the expert advice which they have ever freely sought on problems occurring in their mills, it was felt that they would recognize the opportunity to aid in a movement which will be of the greatest possible benefit to the entire industry by establishing an institution which is world-wide in its fame upon a firm and lasting foundation.

It is recognized that all colleges and universities are more or less dependent upon donations, bequests and endowment funds. For that reason it is hardly logical to presume that the Philadelphia Textile School should be self-supporting. As a matter of fact, the following figures obtained from the officials indicate the actual conditions: The tuition fee for a three-year course is $525 or $175 a year, while the cost of maintaining the student in his course is more than $2,000 for the three years. Consequently the school is unable to depend upon this source of revenue, and unless other funds are forthcoming it is practically impossible for the school to keep abreast with the development of the industry, which it must do to fulfil its proper mission.

Committee in Charge

A general committee has been formed by the alumni to conduct a campaign to raise the sum of $2,000,000 by subscriptions from the members of the textile trades. This sum will be utilized first to erect the new building which will offer the proper facilities for present needs and provide ample room for future expansion. A site has been offered by the city of Philadelphia to the Pennsylvania Museum and School of Industrial Art, of which the Philadelphia Textile School forms a part. This is located in a prominent and conveniently located spot on the new Parkway, on which the important buildings of Philadelphia are to be located, including the Public Library, the Pennsylvania Academy of Fine Arts, the Art Museum, etc.

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which is so sorely needed. The present quarters occupied by the school were originally erected and used by a deaf and dumb asylum for a number of years. It is not adapted to the requirements of a textile school. In addition, the buildings themselves are too small to meet present needs, not to mention future requirements. There is also necessity for new and improved equipment, both for new and old departments.

All of these necessities will be provided for at once by the proposed endowment fund of $2,000,000. With the fund used towards the erection of the new building, it is planned to reimburse givers by the funds which will be realized from the sale of the present buildings and ground. In this way there would be secured a perpetual fund which would insure the maintenance of the school.

It is not planned to ask that the subscriptions be paid in full immediately. Rather, these subscriptions will provide for partial payments during the next five years. By this plan the amounts each subscriber will be asked to contribute will be comparatively small for each year of that period.

The project has already been received with great favor by the industry. The members of the trade well appreciate the valuable work performed by this institution, and count such a subscription as a profitable investment, because of the incalculable benefit they and the industry at large would reap. Already some very large and substantial sums have been pledged by manufacturers in various parts of the country, although Philadelphia interests would naturally be expected to offer the largest share of the subscriptions.

Personnel of Committee

The committee in direct charge of the campaign is composed of William H. Richardson, chairman; Bradley C. Algeo, president of the Alumni Association of the Philadelphia Textile School, and also assistant director of the school; Joseph E. Chappatte, E. L. Mansure & Co., Geo. A. Denny, Diamond Textile Machine Works, Willis Fleisher, Shelbourne Mills, Henry C. Legge, Percy A. Legge, William J. Wall, Nicetown Dye Works, all of Philadelphia.

A number of leading factors of the industry have signified their interest in the project by agreeing to serve on this committee, including Jos. H. Bromley, Quaker Lace Co.; S. S. Fleisher, S. B. & B. W. Fleisher, Inc.; Wm. H. Folwell, Folwell, Bro. & Co., Inc.; W. Park Moore, Hancock Knitting Mills; W. H. Rossmassler, Sauquoit Silk Manufacturing Co.; Paul E. Sutro, E. Sutro & Sons Co.; Chas. J. Webb, Chas. J. Webb & Co., Inc.; John P. Wood, Pequea Mills, all of Philadelphia; Joseph R. Grundy, Wm. H. Grundy Co., Bristol, Pa.; George C. Hetzel, Geo. C. Hetzel Co., Chester, Pa.; Jos. S. Rambo, Rambo & Regar, Inc., Norristown, Pa.; John Macadam, Joseph Bancroft & Sons Co., Wilmington, Del.; George H. Hodgson, Cleveland (O.) Worsted Mills Co. Other important factors, it both in the Philadelphia and other textile centers in order that the campaign may be brought to a successful conclusion.

The plan now is to conduct the campaign of solicitation in Philadelphia for one week, commencing March 1. Five hundred salesmen, covering the textile and allied trades will visit manufacturers and present the proposition to them and secure their cooperation. This plan was followed in the conduct of the Liberty Loan Campaigns among the textile trades in Philadelphia, and met unusual success; in one campaign $10,000,000 was secured in subscriptions in one day, or in excess of the entire quota assigned to the industry.

Those who have already been approached upon the subject for the purpose of securing their support and cooperation have manifested the greatest interest in the project. Those in charge of the campaign are confident of success, and it would seem their attitude was well founded.

National Commander D'Olier of American Legion

(*Continued from page* 199)

turning out material worth $4,000,000 a month. For his work here, he was promoted once more, this time to Lieutenant Colonel of the General Staff. He also received the Distinguished Service Medal, while France rewarded his efforts by bestowing upon him the Chevalier of the Legion of Honor.

As an indication of the value with which his services were regarded, it is stated that, after his preparations to return to this country had been completed, and he was practically ready to sail from Bordeaux, one of the departments found its affairs in such confusion that he was prevailed upon to postpone his departure for another month or so, in order that he might assist in straightening out the tangled details. This done, he returned to this country, having been away almost two years.

An Organizer of American Legion

After his return he felt there was much to be done in order to utilize the wonderful spirit of patriotism and devotion to country which had been aroused in those who fought overseas "For God and Country." He had been one of the first committee of twenty that had conceived the idea in Paris, and put into effect the plan of the American Legion. He therefore directed all of his efforts to the development of this new organization, leaving the conduct of the business of his firm to his partners. All of his time was devoted to the organization of the Legion and the many details involved in so great a task.

Once more his abilities for organization and construction were called into service. He was made chairman of the committee of arrangements for the first national conference at Minneapolis, and when the convention came to elect the first National Commander of the newly born American Legion, Colonel D'Olier was elected upon the first ballot by a large margin. It is interesting to note also that, in accepting the responsibilities of this office, he refused to accept any salary or even traveling expenses as compensation for his services. This action is characteristic of the man, ready to devote himself without reserve to a cause in which he believes with all his heart.

With an initial membership of 1,000,000, Colonel D'Olier, or in strict Legion parlance, "Mr. D'Olier," and his associates are planning to increase the membership to 2,000,000 by the end of 1920, thus embracing the entire overseas forces of the United States in a campaign which has as one of its foremost policies "to make America 100 per cent American."

In the new position which he now holds, Franklin D'Olier, as the first National Commander of the American Legion, has a wonderful power under him in the making. "Policies and not politics" is another of his mottoes for the Legion. The influence wielded by such a band of men as he has following his leadership, and actuated by the highest motives of patriotic devotion to their country, cannot help but place him in the front rank of our national life, and it would be strange if the textile industry, which can claim him as one of themselves, did not feel proud interest in his achievements.

Worumbo Mfg. Co., Lisbon Falls, Me.

New Dye House and Spinning Mill of Concrete Construction

CONSTRUCTION is about fifty per cent. completed on the new dye house and spinning mill of the Worumbo Manufacturing Company of Lisbon Falls, Maine. Both buildings are of reinforced concrete construction, with mushroom posts and flat slab flooring Lockwood, Greene & Company are the engineers, and the Turner Construction Company are the contractors.

The new spinning mill contains three 16-foot stories, and a basement. The building is 130 feet wide by 196 feet long, with bays 26 feet by 26 feet. The floor is of ten inch flat slab with mushroom posts, while the roof is of sawtooth construction, with beam and girder framework.

Granolithic finish is used on the first floor, but on the second and third floors maple flooring is laid over hard pine underflooring. Single steel sash is used in elevator wells, while double sash is used in all other places. Brick curtain walls are used throughout, excepting for stairway and elevator wells. The Fenestra type of natural lighting is used on the outside walls having about 80 per cent. of glazed area.

The ventilating system will be installed by the Buffalo Forge Company, and will be one of the features of the building. The heating system will be installed by the Barber Company of Boston. Electric lighting will be of the general illumination type with R.L.M. deep dome reflectors, and will be installed by Kenney of Lewiston. Fittings for the lavatories will be furnished by Crane & Company.

Davis and Furber Machine Works will supply the preparatory machinery. The Warp Compressing Company will furnish the warping equipment; Crompton & Knowles the looms; and Curtis & Marble Machine Company much of the finishing equipment.

General Electric equipment is furnished throughout for power transmission. Cards and spoolers are driven in groups; pickers have individual motors, and likewise looms. Spinning will be done on Davis & Furber 360 spindle mules. The remainder of the equipment has not yet been decided on.

The added equipment for spinning the fine mohair yarns of the company, which makes the highest grade of woolen and worsted goods, such as the Worumbo camel's hair coats, etc., will increase the capacity of the plant fully 60 to 70 per cent.

In addition to the new spinning mill and other minor additions to the plant, the Worumbo Company is building a large dye house. This building is of the finest reinforced concrete and steel girder construction, and is finished in most modern fashion to resist the corroding effect of volatilizing acids, and chemically loaded fumes of the processes incident to it.

The new dye house is one story in height, 16 feet 8 inches above the floor. Its shape is irregular to conform to the line of the retaining wall, but has an average width of 112 feet and is 122 feet long. The floor is of beam and girder construction, with a four inch slab which is covered with asphalt paving blocks. These are highly resistant to corrosive action. There are trenches in the floor to receive dyeing tanks, and floor spaces in between these tanks are covered with wood flooring upon which is laid the asphalt paving blocks.

The roof construction is also of beam and girder type, the beams having a span of 40 feet, spaced 11 feet on centers. These beams frame into girders supported by 20-inch columns, spaced 22 feet on centers. The beam and girder construction supports a roof consisting of concrete joists and steel "Floretyle," protected on top by two inches of concrete, and on the bottom by plaster on metal lath.

There are three lines of ventilators of timber construction on the roof. The outside and head of these ventilators are covered with asbestos shingles. Inside they are finished with metal lath and plaster. Steel sash of the Fenestra type is used for all exterior openings.

SPUN SILK MILL

Structure of Most Modern Type at New Bedford, Mass.

Construction was recently finished on the new mill of the National Spun Silk Company of New Bedford, Mass., and initiates a program of development for this company along the lines of the finest type of mill construction, and highest grade of interior finish. The new Bedford plant is the main mill of the company, another mill being operated at Central Falls, R. I., for the spinning of silk noil yarns, the by-product of the main plant. The New Bedford plant, when completed, will employ a force of over 4,000 operatives. Lockwood, Greene & Company are the engineers, and the Turner Construction Company are the contractors.

Construction is of reinforced concrete, using ten inch flat slab floors throughout. Interior columns of first, second and third floors are of Bethlehem "H" section, enclosed in concrete. In the mill portion of the building wooden sash is used, and in the stairs and elevator towers, metal sash has been installed. All exterior sash is double glazed, and ventilation is provided by a modern system of heating and ventilating.

The dimensions of the structure, which is the first section of a mill which will be added to in the future as requirements grow, are 352 feet long, by 131 feet in width. The new building is five stories high; exterior bays are twenty-four feet, six inches wide, and interior bays run twenty-five feet, four inches on centers.

Throughout the building sheet maple flooring is laid over hemlock underflooring, set on a sand and tar bed resting on the concrete slab. The exterior columns and curtain walls, and also part of the cornice, are built with brick veneering.

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Cotton Yarns Start Weakly But Finish Strong

A Prosperous Year for Spinners in Spite of a Bad Start

IF a man knows human nature he may do business on that knowledge and be excused from knowing much of anything else. If he has the nerve to back his judgment he may become a successful speculator or a prosperous business man, as the case may be, or he may become the world's best fighting man. For such a man there is room at the top or on his way there. The past year afforded individuals of this type an opportunity for the exercise of these exceptional qualities. Relative prosperity has come to trade in general, and to the few it has come in a way almost beyond comprehension, and many, looking backward, can see wherein they missed greatness by a lack of the gifts above mentioned.

When Opportunity Passed

In reviewing the market for cotton yarns for the year 1919 it becomes plain indeed that the expected happened as usual. He is a man of tepid imagination who in recalling the past year cannot see wherein he might have made a million if his courage had been equal to the job of backing his judgment. Judgment in times of stress is more a matter of horse sense, based on probabilities, than of subtle or cultivated cleverness in manipulating business. There is what is known as a trader's instinct that has brought a peculiar breed of opportunists into the general cotton goods trade, but not so much in yarns. The exclusion of cotton yarns from the interference of members of the itching-palm fraternity and fly-by-night speculators lies in the fact that it is altogether too technical for common gamblers to understand at a glance.

A Slack Beginning

However the consumer was offered his chance early last year to make a fortune when spinners wanted business on a basis better than 10 to 30 days ahead, and consumers of weaving yarns were waiting for more light. They were plainly dawdling at that time; they didn't know their own mind, and were too suspicious to exercise the solid horse sense that the normal American gets credit for having at his command to call on in a pinch. There was no "pep" to the market and weaving yarns showed even less spirit than knitting yarns at that time at the beginnng of the year when animation was the thing most needed to insure a wholesome and healthful movement in support of the future. Prices were holding but needed business to reinforce their position. A limited movement of spots was going on on a basis of 50 cents for 10s cones, and 2-30s skeins were sold, in instances, for 73 cents.

Also Distress Yarns

Temperament played a leading part in the first few weeks of 1919. The sky was obscured with menacing clouds to which there was no silver lining, and there was talk of closing the mills in the face of labor unrest in the belief that it might clarify the situation, which was pure bunk, as we all know now. Distressed yarns figured in an exaggerated way and the market suffered from many rumors of distress sales and slaughtered values because there were no strong buyers big enough and unselfish enough to forget number one for a moment and take hold for the sake of the trade. So the embers of a dull market were left to smoulder.

In the issue of Jan. 25 the TEXTILE WORLD gave the following analysis of the situation as observed in the New York market:

"In the opinion of experienced merchants the course to follow is to let the market situation alone until such time as a sense of values is established. The present condition—a condition and not a theory—is not within the power of any trade factor to regulate or control. Trade is fermenting, and in the process is roiling the contents so that no man can say exactly why or exactly when another change may take place. In this market, business is practically suspended, and factors in the trade are settling to the conclusion that probably after all a recess is advisable. In spite of the pronounced listlessness there are few positive pessimists, and the underlying conviction is that after inevitable recession, which there is no way to avoid, the market must be reestablished at the very bottom and work its way up to better things and normal standards by the natural process of supply and demand.

"Nobody knows what goods are worth, and until that condition is overcome, consumers will not buy; their frame of mind is set against it, and producers would be in error to try to force the buyers hand. Offers of 43 cents have been made for 10s two ply, and for 16s a few thousand pounds have changed hands at 47½ cents. But that is beside the mark, as the holder of the goods let it go as an odd lot, regardless of values. Mills may have to curtail production, probably will, but it will be the natural result of the working out of an unusual condition and not because the world has gone to smash.

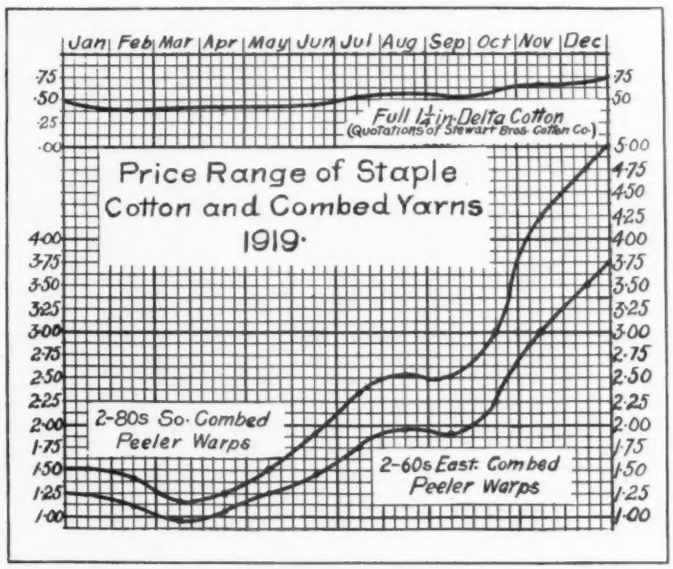
"The world has gone to smash; the worst is over, so far as the smashing goes; the rest is reconstruction which will require readjustment in the beginning. Prices are bound to settle, perhaps to cost, maybe below actual cost before the consumer returns to his normal frame of mind. Factors in this market have ceased to worry because the thing cannot be helped. They are lifting their perspective out of the present and focussing on the future in which they profess to see a bear market and a big business, but no factor ventures to prophesy when."

There is no vein of prophecy in the above analysis, only a commonsense deduction from opinions given by factors in the trade. And the expected happened just like that.

What Might Have Been

In making an analysis of market conditions the observer must depend on information obtained from trade sources, so it is plain that the expected course of events as sketched in the preceding paragraphs was the acknowledged expectation common in the trade.

Events as they transpired proved that the position was well taken.


Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
Full 1 1/4 in. Delta Cotton
(Quotations of Stewart Bros. Cotton Co.)
Price Range of Staple Cotton and Combed Yarns 1919.
2-80s So. Combed Peeler Warps
2-60s East. Combed Peeler Warps
.75 .50 .25 .00
4.00 3.75 3.50 3.25 3.00 2.75 2.50 2.25 2.00 1.75 1.50 1.25 1.00
5.00 4.75 4.50 4.25 4.00 3.75 3.50 3.25 3.00 2.75 2.50 2.25 2.00 1.75 1.50 1.25 1.00

Prices probed the depths before the market recovered after a period wasted in comparative inaction. If strong hands had come to the support of the market as they were due to do and as they were driven to do when the stable was empty, a fairly temperate and stabilized market might have been maintained during that period and a demoralizing shock have been avoided.

And Prices Weakened

As is usually the case in times of disturbance, when confusion reigns and the bottom falls out, nobody derived any real profit from it. It was ever thus that large buying is never done at the lowest price, and the lower prices go the lower they are bound to go until the bottom is found.

About the first week of February current quotations on Southern yarns were sharply revised to a lower level. For 2-10s skeins the quotation was 45 cents, for 2-30s 60-62c. was named. Warps and tubes were about at par with skeins. Frame spun on cones figured at 43 cents for 10s. The price for 20s was 49 cents, and for 30s 53 cents. Consumers refused even to flirt with producers at this time and gave open expression to their own worst fears and probabilities of closing down on their own production. It was a question of who could tell the most convincing hard-luck story those days. It was up to the spinner to go after business if he wanted it and go after it he did.

Business at Some Price

Word came to dealers in this market to get busy. The spinner would accept any offer within reason. What was sought was a free-trading market at some price, and no spinner seemed disposed to hold the umbrella for his neighbor who might happen to be caught out in the wet. It was a buyer's market at the end of January, with prices anything in reason and very little reason at that. The first week in February introduced a sharp decline in spinners' prices. A dwindling interest was manifested by consumers, who faced labor demands for more wages and a buyers' demand for lower prices on their production. The trade was in a sad tangle at that time.

In Spite of Everything

Sometimes a thing happens because of something, and sometimes it happens in spite of everything. However, 30s two-ply sold before the end of February as low as 47½ cents, and small and infrequent lots were disposed of at that figure with others at 50 cents. In spite of the fact that spinners were offering yarns at cost about the end of February, and that production was being curtailed, buyers continued to wear blinders. Spinners resorted to shipping yarns on consignment at a time when consumers' needs were growing more obvious as 1918 contracts were running out, a really deplorable move to make, as it disturbed prices to a still greater extent and proved a weakness akin to heart failure on the part of those who resorted to it.

The Mending Process

When conditions can be no worse is the time they begin to mend. Sometime in March began the mending process. By the middle of the month a better tone was noticeable, and foreign inquiry began to show its face. American yarns had become the cheapest in the world, as had American cotton goods, and foreign buyers were showing cognizance of it. It was noticeable that current buying in February and March was largely confined to small purchases, and that no amount of price cutting sufficed to call consumers of yarn into the market in other than a stingy way. At the same time they wanted express deliveries, which proved, if anything could, that they stood in need of yarn.

Improvement Gradual

Things had changed somewhat by mid-April and a gradual improvement continued to the end of the month. Business was still spotty, but sufficient strength had developed to encourage a decided upward movement of prices with few exceptions. Weaving yarns in particular gained in strength, and by the end of April certain spinners were refusing 60 cents for 2-30s. Buyers continued to slight opportunities to get aboard while the market stiffened before their eyes. Things began to happen in May. The most active counts in Southern carded ply yarns climbed up and up, and fine combed yarns began to run wild. Active counts in carded

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Weaving and Knitting

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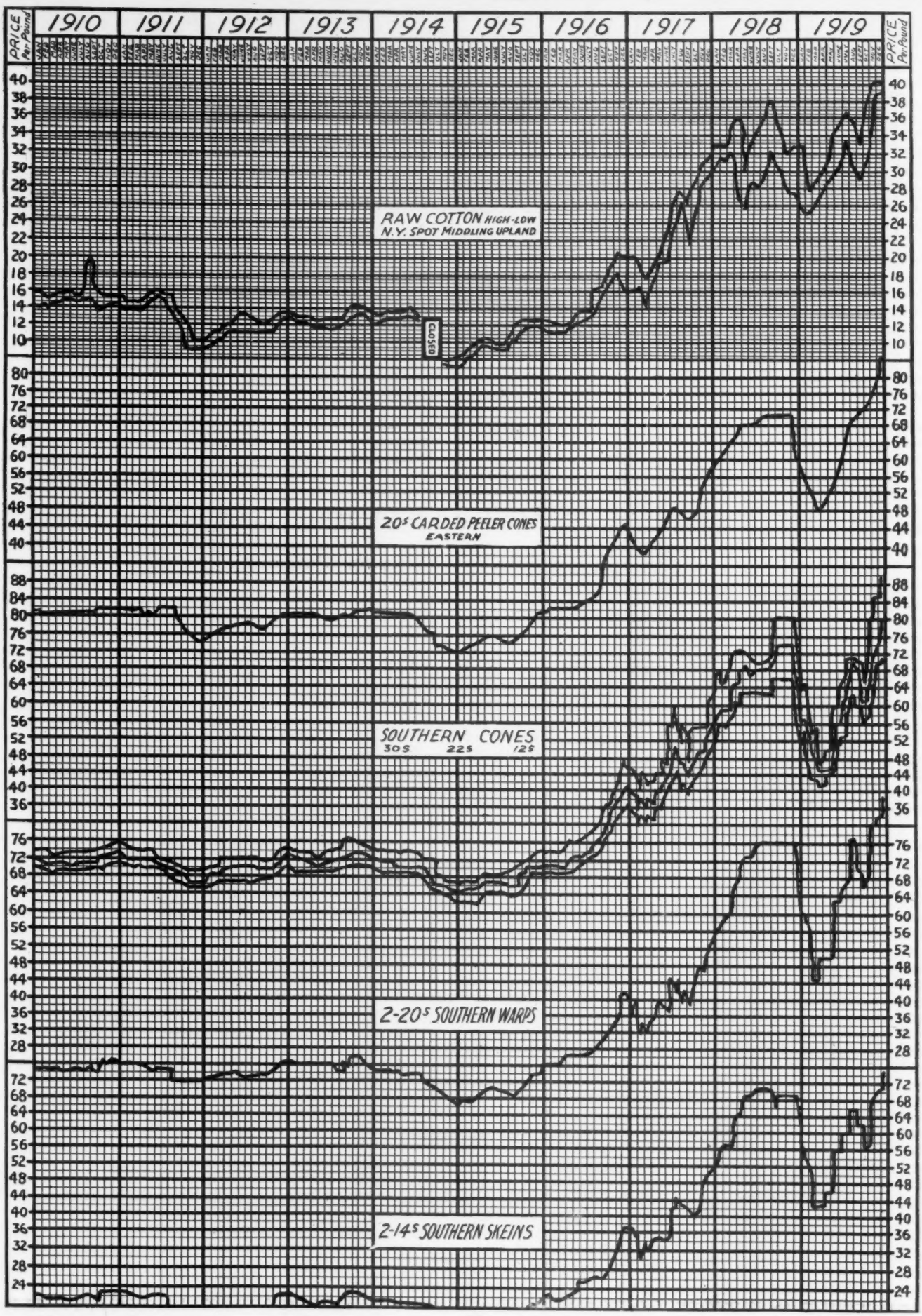
PRICE Per Pound
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
RAW COTTON HIGH-LOW
N.Y. SPOT MIDDLING UPLAND
20s CARDED PEELER CONES
EASTERN
SOUTHERN CONES
30S 22S 12S
2-20s SOUTHERN WARPS
2-14s SOUTHERN SKEINS

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COTTON YARNS

4s. to 80s.

4s. to 80s.

"Direct to Consumer"

Combed, Carded and Double Carded
Cones, Tubes, Warps, Skeins

Johnston Quality Yarns

It is not chance or luck that Johnston Yarns have established such an enviable reputation for quality.

It is due to years of intelligent effort and hard work—growing the cotton under nature's most favorable conditions in the Black Waxy Section of Texas; selecting the highest type of workers and *keeping* them; using the most up-to-date machinery and equipment; constantly supervising every step from field to finished yarn, assuring quality at all times. Try Johnston's Yarns and note the difference.

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CLEGHORN MILLS.....Rutherfordton, N. C.
NORCOTT MILLS CO.....Concord, N. C.
ANCHOR MILLS.....Huntersville, N. C.
CLOVER MILLS CO.....Clover, S. C.
BEARSKIN COTTON MILLS.....Monroe, N. C.
HIGHLAND PARK MFG. CO.
Rock Hill, S. C.; Charlotte, N. C.
SPINDALE MFG. CO.....Spindale, N. C.
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NEW YORK	PHILADELPHIA	CHATTANOOGA	CHARLOTTE
346 Broadway	308 Chestnut Street	820 James Building	224 South Tryon Street

weaving yarns were developing a scarcity and for 2-30s the price in certain quarters had reached 80 cents as the month closed.

Knitting Yarns Improve

Knitting yarns jumped 5 cents a pound or thereabout the last week in May. The convention and exhibition of the National Association of Hosiery and Underwear Manufacturers led to a better understanding and brighter prospects were in view. The jobbing trade was criticized on account of its attitude toward the underwear trade. In the argument between the jobber and the knitter the spinner got no consideration—he could spin or quit. As a consequence he accumulated a surplus which hampered opportunity for profits when conditions broke in his favor later on, when jobbers in June were soliciting knitters to extend the season for summer underwear. But the shortage of merchandise was admitted and ultimately improved the position of spot yarns.

At Cross Purposes

The phenomenal reversal of yarn in the cotton yarn market during the first half of 1919, from one extreme to another, is indicative of the extraordinary times in which we live. Consumers of yarns, it seems, willfully or carelessly, contributed to the demoralization of a market which represented their source of supply for raw material. They looked for the worst and made the way easy for the worst to happen. The fundamental conditions underlying the whole fabric of business were no different in January or July, but the trade had to go to Fiddlers Green and back again before it could find itself. A healthy market and high prices obtained at the end of July. At that time 2-30s tubes were priced at 93 to 95 cents a pound. For 10s cones (frame spun) the price was 60 to 61 cents, and 24s were held at 70 to 71 cents; 2-10s on tubes were 64 cents. Those figures tell the story fairly accurately. And there was no limit set to price possibilities in the near future.

The Usual Slump

August hadn't gone very far before a noticeable easing off in demand was evidenced. Cotton too was showing a weak front, and buyers of yarn were pecking at prices to find weak spots, placing their expectations of breaking the market on the cotton situation. While there was some readjustment of figures there was no real weakness evidenced; the spinners' position and the sold-up condition of numerous mills was too apparent to admit backsliding. Dealers in some instances took profits on their holdings as a matter of precaution, in some instances below spinners' prices, but prices held through the summer vacation period.

It was a quiet August business, but the market continued firm. September was a quiet month and prices softened in a measure but nothing short of an earthquake could shake the market from its stubborn position. Spinners were indifferent to symptoms that had given them cold chills six months before. They hadn't forgotten, as their feet were still sore from the hard road they had traveled some months before when the going was difficult. On the other hand buyers were finding it rather more difficult to buy the wanted yarns.

A Bullish Market

A consistent market continued through October and November, making steadily for higher price levels. Distribution had been large, and spinners were gradually but surely placing limits on forward business on the score that production was being covered to the limits of good business policy. Business had been phenomenal, and while there was a reason for conservation there were doubts existing among dealers if mills were as thoroughly sold ahead as spinners' correspondence indicated. Both weaving and knitting yarns were sold with little effort and fine combed yarns had run wild until the market was almost confused by an excess of prosperity. The trade was bullish all through the late period, but the bulls were not rampant as the market automatically out-paced their most bullish arguments. Bears there were but they had few listeners. The crowd had clambered aboard the band wagon.

Year Closed Strong

Business in December subsided gradually to the close of the year by force of existing conditions. Much business went by the board for the reason that yarns were not available. Some reselling was indulged in more particularly by knitters who were long on supplies for nearby consumption, but the market uplift was in no way affected and the year closed on the strongest yarn market the trade has ever known.

Combed and Mercerized Yarns Nominal

End of Year Found Spinners Sold Up Well Ahead

EXTREME prices approaching a nominal market basis marked the development of the market for combed peeler yarns and mercerized yarns during the year 1919. Here again the old law of supply and demand asserted itself, and with a production far below the requirements of the trade, premiums resulted from the efforts of buyers to secure their needed supplies of yarns. As a consequence prices reached figures undreamed of, with no apparent limit yet in sight. As in other markets, the trade revealed the utter inability to size up the situation which followed the war, with no apparent realization of the condition of the goods market or of the sources of supply. Therefore much valuable time was lost in the early part of the year in sparring for an opening, as buyers looked in vain for the lower prices they expected on yarns and goods. This delay has resulted not only in a loss of production, but also in higher prices being paid when buyers descended upon the market at about the same time. Competition for yarns gradually forced prices upward with no apparent limits. This situation continued to develop throughout 1919, and the close of the year found prices still advancing with ever increasing strength. Spinners had booked such a volume of business ahead they had little to offer for further business on nearby deliveries. The entire market for combed peeler and mercerized yarns presents a decidedly strong position, and in view of the fact that the possibility of securing additional equipment within the next two years is very scant, there are many who predict a relatively high price market for combed yarns for several years to come.

The year opened with the trade generally feeling its way. Business on combed yarns was rather scattered, in line with carded stocks. Manufacturers following the signing of the armistice had looked for a general decline in prices for yarns, and buyers of goods were similarly affected. As a consequence the trade was anything but active. Ply yarns were reported rather better than the single counts. In January, 1919, 40s two-ply were noted at 95c. to $1, with 60s two-ply around $1.15; single 30s were around 85c., with 40s at 95c. As business was slow in developing, prices began to ease off, and 40s two-ply went off to 90 to 95c.; 60s to $1.05 and $1.10, although these declines as usual only served to unsettle the minds of buyers. Mercerized yarns at the opening of the year went through the same stages; 40s two-ply combed peeler were held at $1.25 to $1.30, but gradually reached $1; 60s two-ply were $1.45 to $1.50 but receded to $1.30 or thereabouts.

	Combed Peeler			Mercerized		
	40s-2 ply	60s-2 ply	80s-2 ply	40s-2 ply	60s-2 ply	80s-2 ply
January	.90-1.00	1.15-1.05	1.50-1.80	1.25-1.30	1.45-1.50	1.95-2.00
February	.85- .90	1.00-1.05	1.40-1.45	1.00	1.25-1.30	1.85
March	.75- .80	.85- .95	1.15-1.20	.98-1.00	1.10-1.15	1.70-1.75
April	.75- .80	.85-1.00	1.20	.95-1.05	1.05-1.18	1.70
May	.85-1.00	1.05-1.25	1.25-1.35-1.80	1.15-1.25	1.40	1.95-2.05
June	1.25-1.30	1.50-1.55	1.90-2.15	1.40-1.60	1.80-1.90	2.50-2.60
July	1.30-1.40	1.65-1.85	2.25-2.35	1.65-1.75-2.00	2.00-2.25	2.60-2.70
August	1.40-1.50	1.85-2.00	2.45-2.50	1.95-2.00	2.30-2.50	3.00-3.25
September	1.50-1.55	1.90-2.00	2.50	1.95-2.00	2.30-2.45	3.00-3.25
October	1.50-1.60	2.00-2.10	2.75-3.00	1.95-2.00	2.45-2.50	3.25-3.35
November	2.00-2.15	2.50-2.75-3.00	3.75-4.25-4.75	2.60-2.65	3.50-3.65	5.00-5.10
December	2.25-2.50	3.25-3.50	4.50-4.75	2.75	3.60-4.00	5.25

This condition continued to manifest itself through much of February so that in the gray yarns 60s two-ply were noted in March at 85c.; 40s at 75 to 80c.; 80s at $1.15. In the mercerized yarns similar declines were noted with 40s two-ply in March at 95c. to $1.05; 60s two-ply at $1.05 to $1.15; 80s two-ply around $1.70. The market continued to drag through the early months of the year until about the latter part of April, when interest began to develop. There was a realization of the necessity for goods on the part of buyers, and manufacturers were quick to perceive the situation. With the confidence based upon the ability of the market to absorb their production, buying of yarns began. This movement gradually increased in volume until the market was actuated by a stimulating impetus which has never before been seen. From then on, prices steadily rose. Factors who had long been connected with the trade made conservative estimates of possible advances from time to time, only to see them passed by with still further advances until unprecedented figures have been reached.

Due to Unusual Conditions

Much of the impetus given the buying movement has been traced to the unusual conditions confronting the industry throughout the world. The reduced working hours in the mills, in addition to the general inefficiency and indifference on the part of the help in many plants, naturally curtailed production materially. Consequently there was at all times a greater demand than there was a supply to meet it. In addition to this fact, new outlets made their appearance to absorb large quantities of combed and mercerized yarns. The scarcity of silk and artificial silk, with the gradually mounting prices for these materials, naturally forced many buyers to turn to the cheaper and comparatively more plentiful cotton mercerized yarns. This therefore brought about a larger buying power than was formerly experienced. Still another factor has been the activity of the tire fabric industry, which has been absorbing more and more production from the spinning mills of this country. Not being satisfied with the mere buying of yarns, factors in this trade have also taken over many of the producing units to be devoted entirely to their own requirements. This condition, in view of the difficulties in securing new equipment, has materially reduced the output of combed yarn mills which would ordinarily be available to the general industry.

Mercerized Prices Advance

Buying of combed peeler yarns during the year was confined in many instances to the mercerizers, although knitters also took a goodly share of the output in the gray. Upholstery goods manufacturers were also another large factor at times, owing to the scarcity of artificial silk and silk yarns. As the year developed, nearby deliveries with many mercerizers became an impossibility, while spinners themselves also found it difficult to meet the requirements of buyers. With limited offerings available, prices advanced by leaps and bounds. An advance of 5 or 10c. a pound in a day was nothing, and the appended table will give some idea of the rapidity with which values moved onward and upward without any hesitation.

When the yarn market generally stopped for breath and prices began to sag apparently under their own weight in the late summer, the combed and mercerized yarns never stopped once. Spinners were too well sold ahead to enable buyers to find any weakness. Mercerizers were in the same position. As a matter of fact, prices long ago reached a nominal stage, where it was difficult to say just how far the buyer could go. Each sale depended upon the circumstances surrounding the transaction, and previous experiences were of little value.

In view of the sold up condition of spinners of combed yarns at the close of the year, it is difficult to see where there is any possibility of a decline in prices for some time to come. Buyers of yarns early in the fall began their efforts to place orders well into 1920, but sellers were rather conservative on the whole, and the beginning of the new year found spinners sold ahead as far as May in some cases; in others June and July. Mercerizers are about in the same position. At no time was the market in such shape as to permit speculation by selling short, so that these plants must needs have covered their requirements as they went along. Consequently the trade manifests an entire confidence in the ability of the market to stand, based as it is upon the law of supply and demand. Factors see little chance for any increase of moment in the supply, and as yet there has been no hint of any slackening of the demand.

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Cotton Waste Review

(*Continued from page 245*)

prices for good wastes. White rovings were close to 100 per cent, peeler strips of good staple 75 per cent and choice white strips around 65 per cent. The market was less active at the close of August. High percentage quotations had had a sentimental effect on buyers, who felt they could not pay 90 per cent for combers one week where they had bought it on an 80 per cent basis the previous week. About this time there were complaints appearing as to inefficient willowing. Railroad embargoes, shorter hours of labor, and larger pay all seemed to be conspiring against better business in the market.

In the early part of September the falling cotton market exercised a depressing influence; but wastes in general did not follow cotton down for the reason that they had not shared to any great extent in its upward movement. The demoralization of foreign exchange had thrown a wet blanket over the houses who hoped to do an export business. The German mark was now quoted at 4.15c. The market while dull was not exactly weak, as its control lay largely in the hands of the big houses. A considerable amount of business at this time was being done between dealers. The bearish elements anticipating lower cotton prices, or else being more or less financially embarrassed by stocks too large for them to carry conveniently, had been unloading on those able to carry large stocks and who felt that the next decisive movement would be upward. This surmise turned out to be correct. The fall trade was reported as just starting in with mattress stocks doing a little better, threads firm but inactive and combers and strips being taken at concessions.

High Cotton Depresses Trading

Cotton breaking through 40c early in November acted rather as a deterrent in this market, the wild and extensive fluctuations operating to keep consumers of wastes out of the market. Combers on an 80 per cent. basis were selling at a flat price of 31c to 32c, which seemed an extraordinary figure compared with 25c, at which such wastes were purchasable the previous month. Woolen mills, mattress manufacturers, wiping waste users and others were buying from hand to mouth, and it was considered that they would continue to operate in this manner until the market for cotton had become somewhat stabilized.

The question of contracts for the new year was now engaging the interest of the Exchange. The whole situation seemed tense with uncertainty. The very high price of cotton was, of course, the crux of the problem. Dealers were offering lower percentage figures to the mills than at the beginning of the year. The relative scarcity of high grade combers and strips combined with the fact that the new crop was below average, both as to quantity and quality, seemed to indicate higher prices for these commodities; but not so much higher as mills paying high prices for staple cottons might imagine.

At the beginning of December wastes were very inactive. Accumulation of stocks was running ahead of sales. With cotton around 40c and the British pound down to $3.95, export business with England had come to a standstill. Very few mill contracts had been completed. Trading between members of the Exchange, which was about all the selling that was taking place, had resulted in some cases to percentage stocks being transferred below their cost. Later in the month the market became a little more active, with prices well maintained. Disturbed labor and coal conditions were affecting the market by reducing production of waste on the one hand and bringing about a lessened demand for these commodities on the other. Negotiations for contracts were proceeding both in the North and South; but while, in the main, they were lower than at the beginning of the year, they were, nevertheless, too high to suit conservative dealers.

Near Deadlock on Contracts

There was almost a deadlock between mills and dealers near the end of the year, the former being very insistent in demanding as high or even higher prices than last year, and dealers equally set in their opinion that contracts under such conditions could not be consummated. To make contracts on the present price of staple was in their opinion a very unwise and unbusinesslike mode of procedure, unless on lower percentage figures. The market ended the year inactive. Choice rovings, spinners and combers were in moderate demand at firm prices, but the greater part of the business done was among members of the Exchange, being largely a "swapping of jackknives."

Exceptional Yield from New Bedford Shares

Dividends Not Record, But Future Will Share in Large Mill Earnings

(By *Our Regular Correspondent*)

NEW BEDFORD, MASS., Jan. 21—Despite the fact that dividends disbursed during the year were far from creating a record, the New Bedford cotton mills probably earned more money for the stockholders in 1919 than in any other year, the full fruits of which will be forthcoming in the future. The average return which was distributed on the outstanding capital was approximately 13¼ per cent., which was a slight increase over the 12 per cent. of 1918, and below the 16 per cent. of two years ago. As the final quarter of the year was reported to be the most profitable of any, and as most of the statements issued did not include this most profitable period, the assumption is that for 1920 the yield will be even larger than obtained during 1919.

Good for Operatives Also

This is substantiated by the fact that shorter hours in the mills and an ever-increasing demand for cotton goods of the style manufactured in New Bedford have maintained the high prices which the manufacturers are able to command for their product. The margin of profit is being accomplished despite the fact that wages to the operatives are far in excess of any previous rate, the employers having granted two separate advances during the year, one of fifteen per cent. in June and another in December of 12½ per cent., making 27½ per cent. aggregate. The annual payroll to the operatives has now reached the sum of $37,600,000, or over $723,000 per week. The rate of pay is larger in New Bedford than in any other cotton center in the country, and the operatives in addition are kept more continually employed. The amount of capital invested is $50,572,500, and it is estimated that it would cost over one hundred million dollars more to build and equip these same mills at the present time than the sum at which they are now capitalized, which tends to show that the majority of them, if not all, are very much under-capitalized.

New Mills Being Erected

At the present time two new cotton mills and one silk mill are in course of erection. The Nashawena Mills are building a four-story brick spinning mill, 136 by 244 feet, and a brick weaving shed 155 by 264 feet, the cost, apart from equipment, being $500,000. The Waquoit Spinning Mill is erecting a spinning mill to be of brick, three stories high, 168 by 688 feet; a picker mill 87 by 108 feet, two stories high and built of brick; a power house 314 by 43 feet, one story, of brick; and an office building 55 by 68 feet, to be one story, the whole cost, without equipment, to be $1,000,000. The Waquoit is another of the William Whitman mills for New Bedford, his interests including the Manomet, Nashawena and Nonquitt, to all of which have been added new mills at some time or another. The property valuation of New Bedford has been increased $25,000,000 by these ventures and employment provided for 10,000 operatives.

The National Spun Silk Company is erecting a new reinforced concrete, brick veneer building, five stories in height, 130 by 600 feet, and a one-story power house 84 by 123 feet, the cost of which will be one million dollars without any equipment. The same company built a four-story mill in 1918, and bids fair to be one of the largest employers of labor in the city. Other corporations to add to their plants were the Butler, with a picker room costing $100,000; the Passaic Cotton Mills, storehouse and office, costing $160,000; office building for the Booth Manufacturing Company, $30,000, and a fourth story to the Fairhaven Mills, with brick towers, at a cost of $150,000.

Work for 3,500 More Employes

When the new cotton mills are completed the spindleage will be increased by 156,000 and the number of looms by 700. The new mill of the National Spun Silk Company will necessitate 75,000 spindles. Work will be found for approximately 3,500 additional employes, bringing the number of operatives in the city to 43,000.

During the year the number of spindles in the mills was increased by 17,890, bringing the total amount to 3,402,930, and the number of new looms installed was 215, making an aggregate of 55,397.

The average dividend which was declared by the directors of the cotton mills was 13 3-10 per cent., absorbing $6,742,192 on the outstanding capital of $50,572,500, while the workers also reaped a big share of the general prosperity which was enjoyed. This was manifested by the large gain in the deposits in the savings banks, which showed an increase of $2,292,862, against $1,061,884 the preceding year.

The net increase in the dividends over 1918 was $313,101.

Fur Coats for Mill Girls

Despite the unfavorable conditions created by the war, wholesale and retail merchants generally reported good business, in some cases the best in their history, gains of from 15 to 40 per cent. being reported in many instances. Towards the end of the year department stores reported a big business in fur coats in the Saturday afternoon trade, which for the most part is made up of the textile operatives, and is a fair indication of the big money which was made by the girls and women employes in the mills.

The activity in the mill share market which was so pronounced throughout the year is demonstrated by the increased prices which are now being demanded and willingly paid for local issues, some of which have advanced more than one hundred points over twelve months ago. Without exception, stocks took a decidedly upward climb, and in comparison with the early part of 1919 and the end of the same year Kilburn showed a variation of 138 points, having sold as low as 132 at one stage, while following the boom it sold as high as 270.

Big Earnings by Manomet

Manomet was always in demand and proved to be one of the most popular shares on the market. Quoted at around 140 a year ago, it later sold in small quantities as high as 260, although nothing higher than 230 was offered for a large amount of the stock. Manomet today is in one of the strongest positions financially of any of the New Bedford mills and has tremendous resources. The new balance sheet is not due until this month but the last one which was issued shows that the plant has a net quick asset surplus of $2,250,000, with a capital stock of $3,000,000.

The class of work on which the Manomet is engaged is probably the most profitable in the cotton industry today, and as the directors confined themselves to the regular dividend of sixteen per cent. which the plant has paid for several years, it will not be surprising if the surplus of net quick assets at the present time is considerably in excess of the outstanding capital. The total assets of the corporation amount to over $11,000,000, and the debts in the last statement issued were less than four million dollars, which will give an idea of the under-valuation of the stocks even at the present listed prices. The probability is that the shares will increase still further, especially so in view of the fact that a stock dividend could easily be declared by the directors.

Kilburn Made Record Showing

The showing made by Kilburn was one of the best since the mill was started. Capitalized at $1,500,000, the amount of the profit and loss, reserve and depreciation was shown as $3,254,183, while the plant has a surplus of net quick assets listed at $1,715,179. During the year the directors paid out the same liberal dividend of twenty per cent. as obtained in 1918, declaring $1.50 quarterly with $2 extra for the first three quarters and $8 for the final quarter.

The Holmes mill has also profited enormously from the class of goods being produced at the present time, and the prediction is made that the earnings for the coming year will be larger than at any previous time in the history of the plant. Dividends of twenty per cent. on the common and eight per cent. on the preferred stock were declared during 1919, but there are rumors that a big melon is due for the stockholders some time this year. The stock is closely held in this plant, with but $600,-

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000 on the common and preferred and it is very seldom that either issue comes on the market.

Booth Made Big Advance

One of the most satisfactory showings of the year was that of the Booth Manufacturing Company, which for the first time since it started operations paid regular dividends on the common stock, declaring one per cent. each quarter. As all the back dividends due on the preferred shares have been paid, there is every indication that for 1920 the dividends on the common stock will be increased over last year. Peculiar financial conditions obtain at this plant, as Booth has $500,000 of 4½ per cent. bonds, convertible into common stock at 125, while unusual provisions are attached to the preferred stock issue of $750,000. The commmon stock advanced beyond par for the first time in 1919, and holders are now demanding in the neighborhood of 200.

Unusual activity was noted in Dartmouth common stock towards the end of 1919, with the result that the quotation list was advanced something like one hundred points over the early part of the year. There was no increase in the dividend, the directors disbursing fourteen per cent., an increase of but two per cent. over 1918, despite the fact that the earnings for the plant will probably equal anything in the history of the corporation. After allowing for Federal Excess Profit taxes the earnings amount to over $50 per share, a considerable sum larger than other cloth mills, although a number of the newer mills have yet to make their statement. Dartmouth owes practically nothing but its bonds and taxes, and as the net quick assets are considerably more than the par value of the common stock, after allowing for taxes, it is not unreasonable to expect that the disbursements for 1920 will be in excess of those distributed during 1918 and 1919.

Big Demand for Butler Stock

There has been a considerable run on Butler stock, the share value advancing over a hundred points in less than twelve months. At the early part of 1919 it was quoted around par and sold as low as 97. It is now well over the 200 mark as a result of the activity, all the preferred stock having been either retired or converted, with the common stock now $2,000,000. During the year 20,000 new spindles were added to the plant, and in the last two quarters the dividend was increased from six per cent. to eight per cent., with an extra five dollars thrown in on the final quarter, making twelve per cent. in the aggregate and giving a foretaste of what might be expected this year. The earnings were the largest since the plant started operations and the quick assets are well over the million mark, while the shares are higher than at any previous time, the peak being reached previously in 1910 when they sold at 197½.

Bristol lived up to the predictions which had been made for this mill earlier in the year, and the dividend was advanced to twelve per cent. The stock showed as big an advance as any of the medium-priced shares, with the high mark for the year reported at 198 against 121 earlier in 1919. The profit and loss for the year was $931,151 on a capital stock of $1,000,000, while the surplus of net quick assets is $661,984. As the final quarter of 1919 was not included in the last statement, it is presumed that the financial condition of the plant will be considerably strengthened for 1920, as the corporation was engaged on profitable work at the latter end of 1919.

Sharp showed a big gain, the share values increasing over $100. Owners of common stock were privileged to subscribe to Home Bleach & Dye Works, being given one share for practically every share of common stock owned in Sharp. The earnings for the year, in keeping with the other yarn mills, were extremely large, and although the directors paid out but ten per cent., it will not be surprising if something in the nature of a melon is handed out following the annual meeting which is called for this month.

Quissett Paid Largest Dividend

Quissett had the honor of setting the pace in the matter of dividends for the year, the stockholders receiving $68 in the aggregate, and the end of the year saw the value of the shares advanced over one hundred points, sales at 310 being recorded against 195 earlier in 1919. For the past three years Quissett has earned close to one million dollars each year, and as the outstanding capital is only $1,250,000, liberal disbursements might very reasonably be expected to be the fashion in 1920. If stock dividends are in order, Quissett is in a strong position financially to compete with the other mills, along these lines.

The transfer of the control of the Page mill at the end of the year to the Textile Factors Company was one of the big events in textile circles, the original stockholders profiting to a large extent by the deal. Owners of stock in other corporations also gained to a large extent by the increased demand for their holdings which brought about a general advance in the share values of the various mills. It is generally conceded that if a shrewd firm of financiers could afford to pay close to $300 per share for Page stock which had never previously been in any great demand, then other corporations which have shown much better returns must be very much undervalued at the present time.

Soule enjoyed one of the best financial years in its existence and there was a ready market for all the stock that was offered, the price jumping 65 points during the year. The plant is engaged in the making of unusually fine goods, and the margin of profits in this line has been exceptionally large. Taber also showed extreme activity in the share market, and the showing of the plant justified the demand for shares, the earnings being rated as high as in any previous year. Stockholders have received an average of 14 per cent. for the last three years, and the indications for 1920 point to an increase in the disbursements.

Potomska showed a steady rise in price of the shares, the stock at the end of the year being listed at the highest mark in its history. The directors have been paying a larger dividend of recent years, and still larger distributions are anticipated for 1920. The plant is in an excellent condition financially, having more than half a million dollars in net quick assets over and above its capital stock, and being practically free of debts.

Record Year in Southern Cotton Mills

New Organizations and Enlargements of Established Plants Unprecedented

(From Our Regular Correspondent)

THE year of 1919 witnessed the greatest activity in cotton milling that has ever been experienced by that industry in the cotton growing states. Never before in a twelve month period have so many thousands of spindles and looms been announced for installation throughout that section, both in new mills which were organized and in established mills finding it necessary to increase their manufacturing facilities. Not less than $57,000,000 is the amount required for investment in order to complete the plans which have been decided upon for building and enlarging mills, as authentically reported during last year. This big expenditure is, of course, due to some extent to the general increase in the prices of machinery, building materials, construction services, engineering, etc., but nevertheless the number of spindles and looms for the 1919 announcements is much greater than heretofore reported for any one year in the South.

A considerable portion of these activities has been the result of increasing demands for all kinds of cotton products. This includes greater calls for hosiery yarns required in large quantities for Southern hosiery knitting enterprises, which have developed to extensive proportions during the past several years. These knitting activities are to help supply the deficit in the hosiery market caused by the cessation of hosiery importations, as compared with the quantities coming to the United States before the great war. Many of the new Southern mills are being equipped to meet the market for cloth production and a few are for manufacturing the classes of cotton fabrics used in the production of tires for motor cars, as well as for other purposes in the automobile industry. In some instances it is found that the mills are developing into the production of the finer grades of cotton cloth formerly manufactured principally by the mills of New England. This tendency toward finer grades has been noticed for some years in Southern production.

Amount Invested

In estimating the investments for the mills, the cost for the sites, buildings, machinery, engineering, operatives' dwellings, village communities and public utilities are generally included. On this basis it is of interest to note that $53,802,630 is the amount of money necessary for spinning mills and $3,325,200 is that for the weaving departments of the numerous new and enlarging cotton manufacturing plants of the Southern states. The greater portion of the expenditures is for extensions of existing cotton mill enterprises. Those who manage the established cotton plants are, however, the dominating influence in the control of the newly organized companies and their experience thus assists in successful organization and management. Every cotton milling state is prominent in the cotton milling developments reported last year, North Carolina being most active with South Carolina following.

Many thousands of the new spindles and looms have been placed in position in various mills; other thousands are now being installed, and yet other thousands remain to be installed upon the completion of the buildings under construction or ordered to receive them. All but a small proportion of the textile mill equipment required is built in the New England district and the various well known textile machinery manufacturers of that section have numerous contracts on file, many millions of dollars being represented in these orders. The contracts call for the New England production of the next several years and the owners of those textile machinery works are increasing facilities as rapidly as possible in order to meet conditions.

Far-Reaching Effect

All these developments have a far-reaching effect in the cotton region because of the accompanying activities in the manufacture of building materials, the demand for mechanics and other workers in construction, the extension of public utilities, the erection of operatives' dwellings, etc. Many manufacturing plants of the North, West and South also assist in meeting the calls for the various construction supplies needed in building the Southern mills and for providing the products necessary for the great expansion of the industry.

Not only in the aggregate has the Southern cotton mill of 1919 been of such considerable proportions exceeding any previous year, but the individual announcements have been such as no Southern cotton manufacturer ever expected to know in his generation. For instance, the Bibb Manufacturing Co. of Macon, Ga., owning a number of mills, awarded contracts for machinery to cost $5,500,000, including 50,000 spindles and 1500 looms, besides arranging for the construction of large building additions at its plants. Another big expenditure is $3,000,000 which the Winnsboro (S. C.) Mills, controlled by New England cotton mills engineers and architects, decided upon. This investment will include mill buildings, operatives' cottages, community utilities, 31,000 spindles, accompanying looms, etc., ensuring completion of a contract the company has obtained to furnish large quantities of automobile tire fabrics to a nationally known rubber manufacturing corporation. At Danville, Va., the Riverside & Dan River Cotton Mills will expend $2,500,000 for enlargements which will include building additions, 40,000 spindles, 1700 looms, etc. At Mebane, N. C., the Durham (N. C.) Hosiery Mills, will build a $1,000,000 mill to furnish hosiery yarn for its knitting plants. At Columbus, Ga., the Columbus Manufacturing Co. will invest $1,000,000 for improvements to include 1,000 looms and additional buildings. At Belmont, N. C., a $1,800,000 investment was decided upon by manufacturers who organized three separate companies for these activities. Each company will have a $600,000 plant and the total of spindles in the three mills will be 25,000.

Summary of Plans

Summarizing the most important and the most extensive of the announcements for 1919 are the following brief sentences stating the essential features of the plans as made public during the year:

Contracts understood to approximate $5,500,000 were awarded for textile machinery by the Bibb Manufacturing Co.

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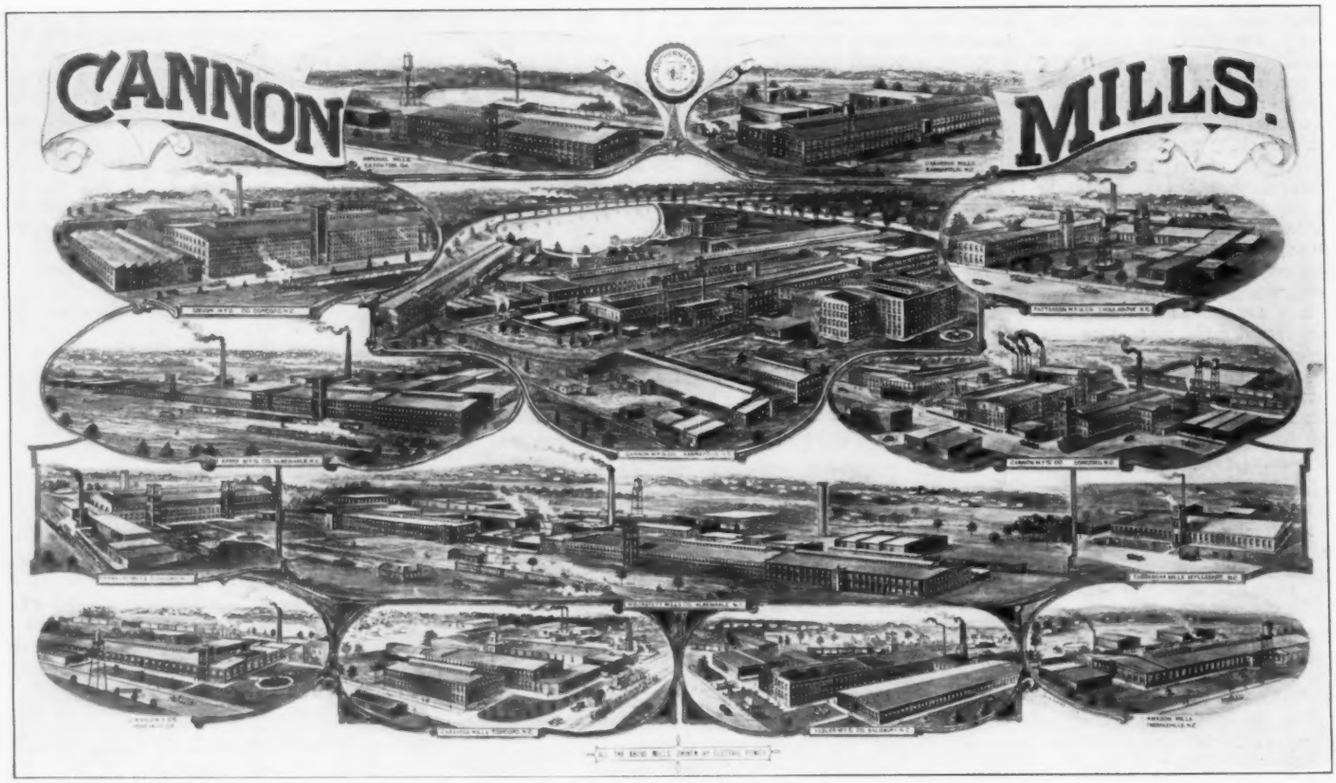

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of Macon and Columbus, Ga. The company has several cotton mills in Georgia and has awarded contracts for large additional buildings in connection with its big machinery contracts. At Macon the Bibb management awarded contract to Algernon Blair of Montgomery, Ala., for building a 1-story 565-foot mill construction addition to the Payne Cotton Mills and for two warehouses at the same plant, the cost of these structures to be about $200,000. At Columbus the company contracted with T. C. Thompson & Bros. of Charlotte, N. C., for building three extensions to the Bibb Mills. These extensions are a 4-story and basement 578 by 127-foot mill structure, a 300 by 120-foot opener-picker room and a weave shed addition increasing the present weaving department to a length of 478 feet. Robert & Co. of Atlanta are the architects and engineers for the additions at Columbus. It is stated that 50,000 spindles and 1,500 looms will be added at this plant.

An investment of $3,500,000 for additional cotton manufacturing facilities was decided upon by the Henrietta Mills of Caroleen, N. C. This expenditure will provide for additional buildings, 50,000 spindles, 1,300 looms, several hundred operatives' cottages, extension of mill village public utilities, etc. About 1,000 operatives will be required for this additional mill. The company now has 1,400 operatives, 75,000 spindles, 1,800 looms, etc.

An investment of $3,000,000 for enlargements has been decided upon for the Winnsboro (S. C.) Cotton Mills, and detailed plans are being furnished through Lockwood, Greene & Co., Boston architects and engineers, controlling and managing this Winnsboro enterprise. The new main building will be 720 feet long by 120 feet wide, 3 stories with basement, constructed of reinforced concrete. The company will erect 130 cottages for operatives, and the public utilities of the village will be increased to meet the needs of the people who will occupy these dwellings. The main mill and village will cost $1,000,000, the new machinery will cost $1,000,000, and various accompanying betterments will cost $1,000,000. About 30,000 spindles will be added to increase the company's equipment to 68,000 spindles and enable it to meet the big contract it has obtained from a nationally known manufacturer of rubber products used in the automobile industry. The mill machinery has been ordered from New England shops.

With A. C. Lineberger as president, three cotton mill companies have been organized for an investment of $1,800,000 to build plants. They are the Acme Spinning Co., the Sterling Spinning Co. and the Crescent Spinning Co. to have an equipment of 5,000, 10,000 and 10,000 spindles respectively. Each mill will have a main building of standard mill construction, 350 feet long by 125 feet wide, 50 cottages for operatives, with accompanying public utilities. Each will cost $600,000.

J. E. Sirrine, Greenville, S. C., is preparing plans and specifications for a $1,000,000 cotton yarn plant which the Durham (N. C.) Hosiery Mills will build at Mebane, N. C. Contract for erecting the building has been awarded to the Aberthaw Construction Co. of Boston and Atlanta. It provides for a mill structure having space for an installation of 10,000 spindles with accompanying mill machinery, all driven by electric power, for a 6-day output of 6,000 pounds of yarn for hosiery knitting. This product will be consumed in the Durham Company's various hosiery knitting mills throughout North Carolina. Accompanying improvements at Mebane will include the construction of cottages and the extension of public utilities.

A $1,000,000 expenditure was decided upon by the Blue Buckle Cotton Mills, Rock Hill, S. C., in order to increase the company's daily production to 60,000 yards of blue denim for overall manufacture. This output will be used in the factories of the Jobbers' Overall Co., Lynchburg, Va., which recently purchased an established plant and organized the Blue Buckle Cotton Mills to continue that enterprise. The plant purchased has been manufacturing ticking and the improvements will change it to a denim mill. There will be installed additional new spindles, cards, and 1,000 looms. To accommodate this machinery there will be built an addition to the present main structure besides a weave room. Other betterments will include building a dye house, constructing 100 cottages and extending public utilities for employes.

Contracts amounting to $1,000,000 have been awarded by the Columbus (Ga.) Manufacturing Co. for additional buildings and new weaving machinery. The weave shed will be a 338 by 216-foot 1-story structure for holding 1,000 automatic looms with accompanying electric power drive. Lockwood, Greene & Co. of Boston and Atlanta are the architects and engineers. T. C. Thompson & Bros. of Birmingham and Charlotte have the building contract.

The Prince Cotton Mills Co., Laurinburg, N. C., was organized with $800,000 capital and it contracted for a 460 by 150-foot concrete and brick building, to be equipped with 12,500 spindles and electric power drive. Machinery costing $600,000 has been ordered and the mill is to have a daily capacity of 10,000 pounds of yarn. R. C. Biberstein is the architect and engineer.

The Thatcher Spinning Co., Chattanooga, Tenn., is doubling its plant of 30,500 spindles. Its new building is of reinforced concrete construction and the new spinning machinery will be driven by electric power, the cost of the additional equipment with its building to be $650,000. New England manufacturers have the machinery contracts.

The Victory Yarn Mills Co., Gastonia, N. C., was organized with $600,000 capital to build a 16,000-spindle cotton yarn plant. Its facilities are to include the spinning machinery mentioned, installed in a 1-story, 400 by 127-foot brick building.

About $600,000 is being expended by the Lanett (Ala.) Cotton Mills for additions which will largely increase its production of cotton cloth. These additions include adding a 200-foot extension to the 525 by 260-foot weaving mill and installing therein about 200 looms. There will also be installed 10,000 new additional spindles with accompanying machinery, all the new equipment having been ordered from New England. J. E. Sirrine of Greenville, S. C., is the architect-engineer for this enlargement.

Big additions of machinery were planned for the Kannapolis (N. C.) plants of the Cannon Manufacturing Co. of Concord, N. C. The number of spindles, looms, etc., was not announced but the size of the additional buildings indicates many thousands of spindles with the accompanying looms for weaving. The new buildings are a 4-story 200 by 100-foot mill, a 4-story 275 by 100-foot mill and four 1-story 100 by 50-foot warehouses, all of mill construction. Robert & Co. of Atlanta, are the architects. At present the Cannon mills at Kannapolis have an equipment of 100,000 spindles and 3,000 looms.

Mercerizing facilities for 25 knitting companies will be established by the Dixie Mercerizing Co., organized at Chattanooga, Tenn., by the managements of those knitting enterprises. This company's buildings will cost $250,000 and its machinery will cost $250,000.

An equipment of 10,000 spindles and 260 looms will be installed by the Eastside Manufacturing Co., Shelby, N. C., which is now erecting its building. This company was organized with $500,000 capital and it has a 114-acre site for mill and village. J. E. Sirrine of Greenville, S. C., is the engineer and architect.

New weaving machinery to the extent of 700 looms was ordered for the Roanoke Mills Co., Roanoke Rapids, N. C., together with finishing and dyeing machinery, to increase facilities. In order to provide space for this equipment, the company is erecting a 2-story 274 by 157-foot reinforced concrete weave shed, a 2-story 157 by 101-foot finishing plant and a 1-story 57 by 50-foot dye house. Nearly $500,000 will be the expenditure for these additions.

A $500,000 investment is proceeding at the White Oak Cotton Mills of the Proximity Manufacturing Co., Greensboro, N. C., 1,000 looms to be added. The mill building is being extended 125 feet, of mill construction with sawtooth roof, 2 stories high. This enlargement will necessitate the construction of tenement cottages for 200 additional operatives who will be required. The looms have been ordered from New England and their production will be white back denim cloth.

A 25,000-spindle mill was announced for the Peerless Cotton Mills, Thomaston, Ga., this company being organized with $500,000 capital.

An installation of additional machinery to the extent of 30,000 spindles was ordered by the Mingon Mills of Sylacauga, Ala. This extension requires erecting and equipping another mill for hosiery yarn production. Probably $450,000 will be the cost of this new plant.

The Dixon Mills, Gastonia, N. C., was organized with $400,000 capital to build plant for spinning combed cotton yarn.

Approximately $400,000 is the cost of additional buildings and machinery being provided for the Coosa Manufacturing Co. of Piedmont, Ala. That amount includes $300,000 for mill equipment and $20,000 for electric plant. The new building will be 356 x 107 feet, 2 stories high, of brick construction, with steel frames. It will be equipped with 18,000 spindles and electric power drive.

Organized with $500,000 capital, the Miller Cotton Mills of Waco, Tex., awarded contracts for a 216 x 108-foot reinforced concrete building, 7,500 spindles, 200 looms, 150 horsepower electric drive equipment, etc.

The Rowan Cotton Mills, Salisbury, N. C., will organize with $300,000 capital and contract for a 10,000-spindle electric power driven cotton yarn mill. There will be a 300 x 102 foot, 10-inch brick building, with two 100 x 50-foot warehouses.

The Grace Cotton Mill Co., Rutherfordton, N. C., was organized with $300,000 capital and awarded contracts for a 300 x 125-foot brick and steel building, 6,000 spindles, electric power drive, etc.

About $250,000 was announced for expenditure by the Warren Manufacturing Co., Baltimore, for important additions to its two mills near that city. These two plants are being modernized throughout, and the betterments include erecting a 160 x 60-foot building, installing boiler plant and steam turbine, increasing hydro-electric development, adding 7,000 new spindles, and installing several hundred heavy looms for weaving duck, etc.

New additional machinery costing $235,000 was ordered for the Knoxville Spinning Co., Knoxville, Tenn., which purchased a suitable building for this installation. The additional equipment includes 10,000 spindles with electric power drive for a daily capacity of 4,000 pounds of yarn.

Cotton cordage will be manufactured by the Waco (Tex.) Twine Mills, which organized with $150,000 capital and awarded contracts for buildings with machinery. The principal building will be 215 x 104 feet, of mill construction, with steel sash, to be equipped with 2,000 spindles and 150-horsepower electric drive. The Hedrick Construction Co. of Waco has the building contract and Lockwood, Greene & Co. of Boston and Atlanta are the architects-engineers.

About $100,000 for mill machinery and $260,000 for buildings will be the investment of the Chester M. Goodyear Co., Greenville, S. C., which is building a cotton waste mill. The buildings will include a four-story 250 x 100 feet concrete-brick mill and ten 100 x 50-foot warehouses.

Year in Fall River Second to 1918

End of Year Offered Far More Promise Than the Beginning

By *Our Regular Correspondent*

FALL RIVER, MASS., Jan. 22.—The closing of the old year, 1919, was far more promising to the shareholders in the forty or more corporations which established Fall River's reputation as the nation's greatest producer and converter of low-count cottons than the start of the same twelvemonth. The present, the immediate and the outlook at the beginning of the cycle were affected directly and uncertainly by the suspension of the strife in Europe. Readjustment had not been begun, nevertheless the changed aspect was so fraught with possibilities that the cotton goods industry experienced the slowing-down process so suddenly as to lead to the fear that a violent reaction was impending.

Waiting for developments resulted in such a degree of conservatism on the part of consumers of the local products that for months the earnings of the mills were reduced considerably. That reduction was reflected in the second quarter's distribution of dividends, but it was indicated most strikingly by the share market, which acted as though the turn in the investment tide for which pessimists were looking had set in.

Recovery, however, was not long in taking place, and the last half of the year was all that could be desired in

(Continued in Regular Section)

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H. M. REMINGTON

American Representative

113 Chestnut St. Philadelphia, Pa.

Washington Center of Dye Interest in 1919

Legislative Program Has Overshadowed All Other Considerations

By *A Member of the Staff*

The year 1919 has not seen many new colors developed or dye factories built or mergers accomplished. But it has given the American dye industry abundant publicity. The reading public has been overwhelmed with fact and fiction relating to American dyes—past, present and future. It has also given color manufacturers and consumers a chance to see Washington. They gathered there from far and wide—the Pros and the Cons—and they are still there. The accompanying review attempts briefly to outline what they did while at the nation's capital.

BORN of emergency under war conditions, reared during years when rough playmates were automatically kept far away; nurtured most carefully as a coming factor of great importance, the infant American dye industry has during the past year been threatened for the first time in its short career with the dangers which lie in wait for the youngster who would venture out alone into the world. Its fond parents scented these troubles when they were still far away and attempted to take measures to protect it. But the very size of the infant's family was a serious obstacle in their way. All of the various relations—uncles, aunts, first cousins, second cousins and cousins to a remote degree—had ideas of their own as to the best methods of bringing up a child. Some wanted it carefully guarded until it was able to take care of itself; others thought that the best way to help its growth was to let it plunge unaided into the cruel world and profit by the hard knocks it would receive there. Even those who wanted the youngster looked out for differed in their ideas as to the best forms of protection to provide. Many of these relations were disinterested—were working for the newcomer's interest purely from the standpoint of family pride; other more distant relatives wished the child well, but didn't want its development over-emphasized to the detriment of their own children. Still others, few in number, had drifted so far from the family and had become so interested in similar offspring of other families that they actually viewed the infant with jealousy and suspicion. Meanwhile, in spite of the family rows which raged over its head, and regardless of the dangers which threatened its young life, the child has been growing steadily. Its development has not been quite as general as might be wished, but it is believed that the next year will see considerable broadening in its progress. This depends largely, however. upon the elimination of family disputes and the unification of the various plans of training proposed by its different relatives.

Reconstruction Problems

It is a matter of common knowledge that the world war, which left no single industry unaffected, influenced the dye trade more deeply than any other. The beginning of hostilities in Europe produced a scarcity of colors more pronounced than in the case of any other product; dye prices, as shown by government figures, soared to greater proportionate heights than those of any other commodity; and finally a complete domestic industry was created out of practically nothing. Is it any wonder, then, that the coming of peace, with its manifold problems of reconstruction, was felt more keenly in this industry than in any other? American dye manufacture has come in for more publicity during the year 1919 than during any other year in history. Daily newspapers, national magazines and trade publications have carried countless pages of reading matter on this new industry; dye experts and others not so expert have delivered speeches without end explaining the dye industry—lauding it, apologizing for it, denouncing it. Interest in its growth has not been confined to manufacturers of colors; it has been shared equally by consuming interests and by the many industries related to the latter.

And the vortex of this unprecedented interest has been Washington. The doings of the War Trade Board, of the Tariff Commission, of the House of Representatives with its Ways and Means Committee, of the Senate, with its Finance Committee, have overshadowed all matters of production and of research.

Three Phases

Legislative matters dealing with the protection of the new industry have roughly divided themselves into three classes, treating three main phases of the question: Legislation affecting the German dye and chemical patents taken over during the war; legislation dealing with tariff protection; legislation regulating the importation of dyes made in foreign countries. An attempt will be made in this article to trace the steps taken on each of these matters and to show the amount of success which has attended efforts to enact legislative measures.

German Patents

One of the very first considerations of the year was the action that should be taken regarding the German patents held by the Alien Enemy Property Custodian. The signing of the armistice rendered the future status of these patents extremely indefinite. They covered many of the faster dyes, the production of which was essential to a well rounded industry. Under the provisions of the Trading with the Enemy Act of October 6, 1917, the Federal Trade Commission was authorized to issue licenses to American manufacturers. It is evident therefore that the good of the industry demanded immediate action on these patents, as American dyestuff factors were loath to proceed with the manufacture of products on which German patents would ultimately come into force again. Their hesitancy was increased by the fact that the manufacture of the dyes covered by these patents is more difficult than that of the azo dyes and calls for a greater expenditure of capital.

It was therefore with great satisfaction that the American dye industry and those to any degree dependent upon it hailed the taking over of the German patents in March, 1919, by the Alien Property Custodian and their sale to the Chemical Foundation, Inc. This body was formed as a quasi-trustee corporation, in which American dye manufacturers were to be stockholders. The patents, some 4,500 in all, were sold to this Foundation through the Alien Property Custodian for the sum of $250,000. The Foundation was capitalized at $500,000 and the remaining $250,000 was provided for working capital. Through this organization rights to patents are leased to American manufacturers. Profits of the Foundation are applied to research work.

This was probably one of the most truly American steps taken by the Administration and was certainly the first great move towards freeing the dye industry from the German grip. Part of the Teutonic scheme of suppression had been the taking out of great numbers of patents in various countries, not in order to manufacture the dyes there, but to prevent their production by domestic firms. The establishment of the Chemical Foundation, Inc., frustrated this aim; provided for research work which will be of inestimable value in future progress, and built up a source of statistical data on dye production which will grow in importance as the years pass. It was an achievement in which the Alien Property Custodian's office may take justifiable pride.

Tariff Legislation

Perennial in its recurrence, a bone of contention in all national campaigns, the tariff question has been of especially vital import to the dye industry. During the past year it has come in for its share of attention, but it has been somewhat overshadowed by discussion on the dye licensing proposition.

The act of Sept. 8, 1916, which is at present in force, increased duties on dyestuffs and other coal-tar products, but left several chances of evasion and misunderstanding which have been widely discussed in the trade. Furthermore its duties, even though increased, have not been generally considered large enough to properly protect the industry.

In order to remedy these defects the first part of the Longworth bill, which has been one of the most widely discussed measures of the past year, provided for a new schedule of dye duties. The tariff provisions of this bill are well known to dye consumers. A wide list of certain coal-tar intermediates and other materials received a duty of 40 per cent. advalorem, and a specific duty of 6 cents per pound; a second list of colors, dyes, stains, color lakes, color acids, color bases and other materials received a duty of 45 per cent. advalorem and a specific duty of 7 cents per pound.

This bill passed the House; it did not pass the Senate. It is still submerged in Senate committee meetings. But the reason for the delay did not lay in these tariff provisions. Even anti-protectionists have come to the point where they approve of this high duty or even higher rates for the protection of the American dye industry. The rest of the bill was the bunker. The last clauses provided for the licensing of dye imports and the tariff section suffered from its association with its much maligned companion.

Licensing Dye Imports

Dye licenses! A year ago these two words conveyed little or nothing to the average hearer. Today they're the signal for a fight. Everybody is either for or against; there are no neutrals. And thereby hangs a tale.

It all grew out of the question: Will a tariff alone provide sufficient protection for the American dye makers? There seemed to be considerable evidence to prove that it would not. The consolidation of the German dye firms into the great Cartel; the backing of this organization by the German Government; the memories of the ruthless dumping and other suppressive methods used by Teutonic dye men to stifle production in other countries, all pointed to the fact that tariff walls would soon be broken down.

Accordingly, the plan of licensing imports of German dyes was conceived. Under this arrangement a commission was to be appointed to receive applications for colors and to decide whether or not the particular dyes requested were being made in this country in sufficient quantity and at reasonable enough terms. Otherwise a license for the importation of the dye would be issued. The commission was to be composed partly of dye manufacturers and partly of dye consumers.

Accordingly, Representative Longworth introduced a bill into the House combining both the tariff clauses and the licensing provision. And the fight was on.

Opponents to dye licenses began to show their heads in all directions. These were partly textile men and partly dye importers. It is needless to outline here the arguments pro and con. They have been quoted so many times that the innocent by-stander knows them backwards. Suffice it to say that the main argument of the opposition was that the machinery of a licensing commission, with the delays which usually attend a Governmental body, would seriously handicap the dye consumer in obtaining needed colors.

The bill was referred to the Ways and Means Committee. After prolonged public hearings, it passed the House in a somewhat altered form, but with the main provisions intact. The principal change was the appointment of the Tariff Commission as the deciding body instead of a commission of dye makers and users.

Going to the Senate, it was referred to the Finance Committee. Here renewed opposition showed itself, and it began to look doubtful if the measure could pass in its original form. A substitute measure was accordingly proposed by the American Dyes Institute. The text of this has been given in these

columns. It provided for a list of importable, conditionally importable, and non-importable colors, with an arrangement that, as dyes became available from domestic sources, they should be moved from the first to the second list and so on. The Tariff Commission was named as the governing body.

The new measure was referred to a sub-committee of the Finance Committee. And as this is being written, the bill slumbers in the hands of that body. It would be foolhardy to predict what will become of it or how soon action will be taken, but men who have been fighting for the protection of the American dye industry appear optimistic; they are confident that a measure will be adopted which, regardless of its form, will guard domestic color manufacture during these vital years of growth.

Dr. Herty's Mission

In discussing dye developments of the year, Dr. Herty's trip abroad should not be overlooked. On account of a concerted request on the part of vat dye users for sufficient of those fast colors to meet their needs until American dye manufacturers could offer them, Dr. Charles H. Herty was appointed as special U. S. representative to go abroad and negotiate with the Inter-Allied Reparation Commission for vat dyes to fill six months' requirements. He left in September, and returned in November, having successfully accomplished his mission. He made arrangement for 20 per cent of the needed colors through the Reparation Commission and secured an option for the remainder by direct negotiation with the German Cartel. These vat dyes have been delayed by floods on the Rhine and other unfortunate circumstances, but it is believed that their arrival will soon be an accomplished fact.

The Future

Briefly that is 1919's dye history. It has been a stormy year undoubtedly, but such a period as parents must expect when rearing a husky youngster. The future looks bright if the family will only move out of the city of Washington into the more healthy country districts.

A Consumer's Viewpoint on Dye Development in 1919

Principal Gaps in American Lines Pointed Out by Mill Chemists

By *A Member of the Staff*

In summarizing the developments of the year 1919 so far as the American dyestuff industry is concerned, it was felt that in addition to statements by dye manufacturers it was also necessary to get the viewpoint of the consumers, since, after all is said and done, the success or failure of the domestic industry depends upon the attitude held toward it by the dye user. Accordingly Oscar R. Flynn, head chemist for the Waldrich Bleachery, Delawanna, N. J., was interviewed by a representative of TEXTILE WORLD. Mr. Flynn's opinion carries especial weight in view of the extensive work in dye manufacturing which he has carried on at the Waldrich plant in order to protect the mill against the dye scarcity which resulted from the Great War. A description of this development has been given in a previous issue of this publication.

WHEN discussing American dyestuff development, a dye manufacturer is likely to emphisize the things which have been accomplished. A consumer of dyes, on the other hand, will usually point out the things which have been left undone. It was this phase of the situation which was given special emphasis by Oscar R. Flynn, head chemist for the Waldrich Bleachery, Delawanna, N. J., in an interview with a representative of this publication.

Mr. Flynn is an ardent supporter of the American dyestuff industry and believes in any measure which will help to make us independent of foreign countries so far as the production of colors is concerned. In looking back over the year 1919, however, he does not feel that the period has been significant so far as development goes, but rather that it has been marked by a lack of development. By development is meant, of course, the commercial production of new colors. He realizes, however, that dyes which were first produced in years prior to 1919 have been more extensively produced during the year just closed—in fact, that many such colors have seen their principal development during the last twelve months, although they cannot rightly be considered as 1919 products.

Price Reduction

Mr. Flynn also emphasizes the fact that improved methods of production coupled with increased competition have resulted in price reduction on many important dyes. His discussion is, by the way, limited to colors used in the dyeing of cotton as that is the field in which he is interested.

One of the principal events of the year, in his opinion, was the competition which developed in the line of Gamma acid colors, as the result of their production by at least one more manufacturing firm. This line includes the following cotton dyes: Violet N; Fast Red F; Brown M; Black B H; and Black F F. The importance of these colors, which are all of the better class of direct dyes for cotton, made it doubly strange that their production, prior to 1919, had been largely limited to one firm.

Among other accomplishments of the past year was the price cheapening of chrysophenine. This important direct yellow has now replaced Stilbene yellows to a large degree.

The extensive development of brilliant violet shades of sulphur blue by a large number of concerns is also regarded by Mr. Flynn as one of the high spots of the year.

Dye Deficiencies

It is with regard to the deficiencies of the American dyestuff lines, however, that he offers the most valuable information on this general subject. As a matter of fact, one wonders if dye firms try hard enough to get opinions from dye users as to colors most urgently needed. Certainly it would seem that such data would be of very real assistance in decisions affecting future development.

The chief weakness in the American cotton dyes is in the reds, in Mr. Flynn's opinion. In spite of the time which has passed since German colors were first cut off, we are still using reds of the Primuline type and calling them fast reds, and still waiting for the Benzo Fast Scarlets of pre-war days. Apparently there's no indication of any J acid in sight, and it is on this intermediate that these scarlets, in addition to a number of diazo reds, depend. It is a derivative similar to Gamma acid in many ways, but evidently more difficult to make.

Erika Pink Unavailable

Pinks of the Erika type are also not made in this country. These are direct pinks of good general fastness. They depend on di-hydrothio-toluidine and Epsilon acid. The former intermediate is being made here, but Epsilon acid is not available.

American manufacturers are making dyes of the Diamine Rose type; these are not quite so fast as the Erika pinks. The latter are given in Schultz's tables as "good" to light, and the former only "fair" to light.

Vat Colors

And then of course there are the much discussed vat colors. It is almost superfluous to mention the absence of the more undesirable phases of these very important dyes. From recent indications, Mr. Flynn believes that a certain number will be available shortly.

Quality of American Dyes

In regard to the quality of the colors supplied by domestic manufacturers, Mr. Flynn stated that he has not much fault to find with their solubility and is having very little trouble with color spots, which of course develop during the use of poorly soluble dyes. More or less trouble as regards the lack of uniformity in shipments is being experienced.

"The present manufacturers," said Mr. Flynn, "learned how to sophisticate their products with salt, and do it just as industriously as did their German predecessors. Samples of Primuline, quoted at approximately the same price, show money values ranging from $4 to $9 per pound, depending on the variable percentage of combustible matter.

"There should be a standard to which all manufacturers would conform. This is no new problem—that of the dilution of colors. As far as basic dyes are concerned, there is no excuse for diluting them with salt. The excuse for diluting azo colors is that they are amorphous and must be precipitated by salt in order that they may be obtained in a solid form. Therefore dye makers find it necessary to have salt present in the colors when they are filtered down. Even when filtered, they have 60 to 80 per cent. salt water. When the water is dried off from 30 to 50 per cent. of salt is left mixed with the dye.

Definite Standard Needed

"Dye manufacturers claim that they have to add salt to many dyes in order to bring the contents up to uniformity. But that doesn't necessitate increasing the salt content up to 80 per cent., as has been done in the case of some dyes.

"The makers should adopt a definite rule as to what constitutes a standard or type color. If 60 per cent. of salt is considered a convenient amount to have present, then that should be adhered to. Then dyers would know what they have to reckon with, and they would be relieved of the necessity of making an elaborate series of strength tests."

Mr. Flynn sees no reason why American houses should not be able to turn out as good colors and as complete a line as the Germans did. He pointed out, however, that it takes time to develop workers with a knowledge of the different processes, and that it also requires a great deal of money to work out these methods, as they must first be tried in the laboratory and then converted to a commercial scale. It must be expected that a great deal of material will be wasted in these tests.

In his opinion the American dye firms have good representatives—high grade men who know their colors and have had sufficient experience so that they know the operations of dyeing and are thus able to talk intelligently with the mill superintendent or chemist.

Dye Licenses

When asked as to his opinion on the licensing of dye imports, Mr. Flynn had the following to say:

"It is a ruinous policy not to license imports of German dyes so as effectively to safeguard the American industry. It is admitted by all men who know anything about the chemical industry that it is the basis of chemical warfare. We have got to have the plants and the trained personnel. It is necessary to keep up the production especially of those products derived from coal tar crudes. The only way to obtain these results is by maintaining the dye industry. No philanthropist is going to keep up these plants so as to be ready for the next war. The dye industry does it automatically.

"It is therefore necessary to foster it, and personally I consider it almost a patriotic duty for everyone to stand back of the licensing proposition.

"Nations have learned to fight in a certain way and when they find themselves in a corner they'll resort to that method of fighting. No consideration of sportsmanship will restrain them. They may not want to use those methods but there's always the thought that the other fellow will do so, and consequently it will seem wise to beat him to it. It is for this reason that our country can not refrain from adequate preparation in all ways."

The Year in Dyestuffs a Preparatory One

Results of Vat Dye Research Should Be Realized in Next Twelve Months

The dye industry is not an easy one to analyze. It is, in fact, probably the most complex branch of manufacturing in the country. More than that, it is a new one so far as America is concerned. It has therefore been thought advisable to allow members of that industry to speak for themselves. The opinions of a few dye manufacturers are accordingly recorded in these columns as a supplement to the usual review.

THE year 1919 has not been a startling one so far as the development of new dyes is concerned. In retrospect it appears somewhat drab in comparison with its immediate predecessors. During those remarkable war years, a new industry was being created and its birth was attended by all the romance and the glamor which always accompanies such an event.

The year 1919 was a breathing space. The first great strides had been taken and those responsible for the newborn industry took advantage of these twelve months to look around and see what direction future development should take.

There were not many important changes in the personnel of the dye manufacturers, nor was there any remarkable extension of existing factors. Probably the most interesting event of this nature was the purchase of the controlling interest in Roessler & Hasslacher Chemical Co., by the American Aniline Products, Inc. There were also rumors of more ambitious plans on the part of the latter firm, but the year closed without any official announcement coming from the company.

But, potentially, the year has been far from uneventful. With a wide range of colors of ordinary fastness fairly well established, and with production on these lines sufficient to keep the mills running, the best thought in the industry has been turned to the development of the fast dyes. Commercially, the manufacture of these better products has not been of much importance, but the research work which has been done promises well for the future. The production of these dyes involves an infinite amount of painstaking laboratory operations. The year 1920 will reap the harvest of the hard work of 1919.

Price Developments

In prices, the past year was one of readjustment. During the war, dye quotations had been nominal—it was a question of delivery first, last and always. Previous standards went by the boards; new and fabulous levels were established. But as the competition increased and production broadened, prices began to show a general settling. Most of this process developed during the past year.

This tendency can be illustrated by comparisons of the prices of certain colors at the beginning of 1919 with the quotations ruling at the end of the year.

Benzo Purpurine 4 B, priced in January at $2.75, has been offered lately as low as $1.70. Methylene Blue went from a high of $3.50 down to $2.50. Sky Blue, ordinary, quoted a year ago at $5.50 could be obtained in December at $2.50. Other price declines were: Malachite Green, $7.00 to $3.00; Sulphur Black, 40 cents to 25 cents or lower; Direct Green B and G, $2.00 to $1.25.

These declines were but the normal results of the gradual standardization of a new industry. They are not indicative of market weakness. They show what the good old American doctors, Competition and Progress, can do.

in prices was noted except in a limited number of special colors where production has been broadened.

"I believe that prices will remain as they are to-day for a long time. In fact, some prices are going up and will go up, particularly such basic colors as Malachite Green, Methyl Violet, Fuchsine, Methylene Blue, for which there is an export demand at present so immense that the U. S. cannot satisfy it.

Prices for these products during the last four weeks have advanced from 30-70c per lb. and continue to go up every day.

Direct Colors

"Taking specific colors, Direct Blue 2B was quoted about $1.30 per pound at the first of 1919 and is now priced as low as 80 to 85 cents for concentrated type. I consider that a rock bottom price. Some colors will never be able to go lower than present quotations; in fact, the Germans themselves will never be able to manufacture them at a lesser figure.

"Direct Black has been practically stationary throughout the year.

"Congo Red has dropped about 30 cents during 1919, coming down from an average of $1.20 to 90 cents. Benzo Purpurine 10B Conc. has declined from about $4.50 to $3.

"Extensive development in Chrysophenine brought the price of that direct yellow from about $8 down to $4.50.

Basic Colors

"Rhodamine B had not been produced in large quantities prior to 1919, and consequently that color has been featured by a marked price change during the year. From the January quotation of $10 per pound it has decreased to $6. The concentrated has been reduced proportionately from $60 to $30.

"Auramine O was at one time during 1919 quoted at a much lower price by American manufacturers than the Swiss producers could afford to name. It was found impossible, however, to supply all the domestic demand and accordingly the price on the foreign material went up again because of scarcity. The Swiss makers, who had been discouraged by the very low price of the American product and had accordingly reduced their shipments to this country, boosted their quotations by 30 or 40 per cent. Swiss Auramine, quoted in December at $2.50, is now quoted at $4. To be correct, Auramine is not to be had.

"Bismarck Brown and Chrysoidine remained practically unchanged during the year.

Other Colors

"Acid Black has shown little fluctuation, but in my opinion is going to go higher.

"Sulphur Black is as low now as it will ever be sold. A good black is obtainable for 22 cents. This product was quoted at 45 cents at the beginning of 1919.

"Nigrosine has remained at about the same price level.

Demand During 1919

"As far as demand for colors during 1919 is concerned, the call from domestic sources at the start was better than that from abroad as the American consumers knew what they had to count on—they realized that there was no prospect of obtaining colors from Europe and accordingly placed orders as the need arose.

"Domestic business remained at about the same volume during January, February and March. It started up again in April. In June it increased by almost 50 per cent. over April's figures, and stayed more or less at that advanced level for the rest of the year.

"Export business at the close of the year was four times as great in volume as it was during February, March and April."

Dye Licenses

When asked for his opinion on the dye license proposition, Mr. Nobbe stated that he believed in the principle of such legislation providing that the authority to grant such licenses be in the hands of a Governmental body.

Dye Prices Have Reached Level

IN an interview with a representative of TEXTILE WORLD, Paul Nobbe, vice-president and sales manager of the American Aniline Products, Inc., New York, outlined his idea of the extent to which the American dye industry developed during the year 1919. He put this in concrete form by listing the colors which, in his opinion, had received special development during the year so far as increased production on a commercial scale is concerned.

Acid Colors

This list comprises the following acid colors: Fast Acid Violet 10 B (now in an embryonic state); Violamine; Soluble Blue; Acid Blue B (first made by Sandoz and also sold by a German firm as Wool Blue G Extra); and finally a color similar to the old Bayer color, Acid Violet 4 B Extra.

Direct Colors

Among the direct cotton colors especially marked by development during 1919 are: Brilliant Benzo Blue 6 B; Benzo Blue R W; Diamine Brown M; a color similar to Benzo Fast Red F C; Benzo Azurine and Deltapurpurine 5 B.

Chrome Colors

Development in chrome colors has been limited. The following have received special attention during the year: Palatine Chrome Red; Coeruline; Gallein, Delphine Blue; Diamond Black P V; Alizarine Red (sold as a 20 per cent. paste); and true Anthracene Brown.

Sulphur Colors

Under this heading come Sulphur Indigo (similar to the old Katigen Indigo R L Extra); Sulphur Rubine (similar to Sulphur Maroon); and Sulphur Blue (similar to Katigen Indigo G Extra).

Basic Dyes

Basic colors developed during the year included: Methylene Blue (Zinc Free); Methylene Green; and Brilliant Green, Auramine.

Fast Colors

As is well known, the development of vat dyes is still in a laboratory stage to a large extent. Mr. Nobbe stated that he understands vat green and a vat violet have been produced on a sufficiently commercial scale to take care of a very limited demand.

Price Tendency

When asked as to the trend of dye prices during the year, Mr. Nobbe gave the following analysis:

"In the first few months of the year, due to the lack of business following the signing of the armistice, prices declined. But from the middle of the year, at which time business had become normal again, especially with domestic textile manufacturers—the buyers of dyestuffs—very little change

American-Made Dyes Number 300

THE opening of the year 1919 witnessed the commercial production of about 250 of the dyes heretofore imported, and the close of the year, when the records are disclosed, will doubtless show the addition of over 50 colors which may be identified in the Schultz Tables, to be included in the list of those being made in commercial quantity, according to Charles H. Stone, vice-president of the Atlantic Dyestuff Co., Boston.

"The 300 or more homogeneous coal-tar dyes now being made in America include representatives of all the important groups of synthetic colors," says Mr. Stone.

Direct Cotton Colors

"The substantive, or direct color, group of dyes, which are used most extensively for cotton and union dyeing, has been extended in all respects perhaps further than any other group toward the high standard set by the European manufacturers prior to the World War, and a number of the divisions of this group, notably black, brown, green, orange and yellow have representatives of the most valuable types we have known in the past.

Acid and Basic Colors

"The acid group has almost kept pace with the substantive, and among the outstanding acid colors made during the year are the chemical duplicates of Violamine, Patent Blue, Wool Green S, etc.

"The basic group had been brought up to such a state of completeness prior to 1919 as to substantially comprehend the more important types of its class; an important color of this group, just

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announced, however, is Phosphine, largely used for leather dyeing.

Chrome Colors Development Limited

"The chrome colors group, other than the true alizarines, has been marked by no striking additions, although manufacturers other than those producing them prior to 1919 have come into the field with some excellent colors, which dye by any one of the three usual methods—chrome top, chrome bottom and monochrome—employed in the application of this group.

"The alizarine group derived from anthracine has been added to numerically in so far as could be expected, considering the enormous financial outlay necessary for their production, which manufacturers have been disinclined to risk on account of the uncertain course of protective legislation for the industry; it is hoped, however, that by the time these lines reach the reader the future of the industry will have been made secure by needed legislation, thus justifying the manufacturers in proceeding to make the necessary outlays required to produce this highly important and difficult group.

"The notable addition to the alizarine group during the year has been alizarine sapphire, a color indispensable to the woolen dress goods industry.

Progress in Indigo

"Splendid progress was made during 1919 in the production of Synthetic Indigo; three companies are now making this valuable vat color in large quantities—in fact, in such quantities as to supply the needs of American users, and leave a surplus for export. The price of Indigo has been materially reduced since its commercial production assumed importance, and, as with other colors offering peculiar difficulties in manufacture, further reductions in price may be expected as the yield is increased.

Sulphur Colors

"Remarkable progress had been made in the sulphur colors group before 1919, so that this year has seen less of apparent development than in previous years; it can be truthfully said, however, that the sulphur colors group has been advanced even further during 1919 than in any recent year, not by the addition of new products, although a splendid sulphur green has been added, but by the state of perfection to which certain of the sulphur colors, notably black, was brought during the year.

"It is a gratifying fact that America is now producing sulphur black of unequalled quality, regardless of the prewar standard taken for comparison.

Standardization of Dyes

"A most striking point of progress noted during 1919 is the greater care being exercised in standardizing the colors made; in this respect a mill chemist or dyer can now open a new package of a particular color received from any one of the more experienced dyemakers with the assurance that it will in all respects duplicate the preceding shipments of the same color which he has had; this is perhaps the most important progress made in the industry during the year from the user's standpoint.

"At the end of 1919, it was possible for a manufacturer of textiles or other merchandise, requiring coal-tar colors, to attain substantially the same degree of excellence in his colors that he was able to attain ten years ago, without using a pound of imported dyestuffs.

Trend of Prices

"The trend of prices during the year has been downward; to-day the price of the most widely used dye in America—Sulphur Black—is less than 50 per cent. above the pre-war price of the imported article, considered both from the standpoints of price per pound and tinctorial value; and if the depreciated value of the dollar is taken into consideration, sulphur black was sold at the close of the year 1919 cheaper than it was prior to the war. Many other well-known colors are selling for much less than their introductory prices to American users.

"Many factors entered into the control of prices during 1919; the usual items of labor, high material costs, etc., are familiar to everyone; one factor inherent in the chemical industry—more especially the dyestuff industry—is yield, which was and still is the controlling factor in the prices of dyestuffs.

Yield a Factor

"The textile or steel or rubber manufacturer can figure with reasonable accuracy the amount of finished material he will obtain from a given quantity of raw products; the dye manufacturer does the same in theory, but experience during the past five years has taught him to reduce, in some cases to almost nil, the amount of finished dye he will get from the stated quantities of intermediates necessary to start a particular batch or operation. Experience alone, guided by that skill which comes from successful repetition only, can bring yields up to anywhere near the theoretical maximum, and it will be necessary for the dye-makers always to take this fact into consideration in establishing their prices.

"Competition has also been an important factor in bringing prices down; as many as a dozen makers are in some instances producing the same color, which has resulted in some cases in over-production, and consequent lowering of prices.

"It can be deduced from the above that prices of many American-made dyes may be expected to continue downward for some years, normal economic and industrial conditions continuing to prevail.

Per Capita Color Cost

"The per capita color cost in America prior to the war was 35c. or 40c.; the per capita color cost to-day is perhaps less than 70c.; these figures indicate that there is no profiteering in this highly technical business.

"As to tonnage, the American dyemakers are producing an amount even in excess of the annual imports of coal-tar dyes into America prior to the war.

"The year 1919 saw very little in the way of new and independent plant construction, although there were a few independent operations started.

"As the productive capacity of established plants in America has easily reached the country's consumption of the colors they are equipped to make, future construction is likely to be confined to improvements and installations for new products in established works.

Future of the Industry

"As to the future of the industry: it has attracted some of the brightest and most resourceful men in the fields from which it could draw; it has interested capital in sufficient amount to make America the leading dyestuff exporting country to-day, in addition to supplying 97 per cent. of her own needs; it has given us a basis of national protection surpassing that of any other nation, and its future is assured for so long as our Government is desirous that it—a key industry—shall be maintained on a healthy competitive basis, instead of permitting it to be choked by the German chemical cartel, a trust of staggering magnitude."

Indigo Demand Met Satisfactorily

"THAT the indigo situation has been fairly well taken care of during the past year is perhaps best indicated by the statistics which show quite a liberal export, particularly to the Orient, of American made synthetic indigo, and without any resultant advance in price to the home consumer," states W. H. Fieldhouse of Aniline Dyes and Chemicals, Inc.

"There has been quite an importation of vegetable indigo, an indication that domestic production of the synthetic product has not yet been placed on the market at a figure making the old vegetable indigo prohibitive or reducing its consumption to almost nil as in the prewar period," adds Mr. Fieldhouse.

"It would be purely conjecture to speculate on the probable consumption of indigo at or near pre-war time figures, and to compare the requirements of the product with those of 1914 would have little or no value.

"There may be said to be a demand for all that is produced and that there is no surplus available.

"On the vat colors, over which there has been so much controversy, these have not been produced in commercial quantities, with the exception of certain blues, and for these the demand keeps up with the rapidly increasing supply.

"Press notices are responsible for the statement that efforts by some of the works exploiting the colors is being deferred pending the adjustment of tariff or other protection measures, and this is unfortunate and can only result in the importation of fabric containing the vat colors which are available abroad.

"Outside of the vat blues there does not seem to be any available vat colors excepting such as may be imported from abroad under the licensing system, and a somewhat limited supply of these.

"The perfecting of these products will therefore be watched with keen interest."

Early Dye Protection Needed

"IT is unreasonable to expect Americans to do in five years what it took Germany fifty years to accomplish," says the Monroe Color & Chemical Co., Quincy, Ill. "We can and are making dyes equal in quality to the imported ones, but the accomplishment of minimum costs of production will require time. If Congress protects it as it did the steel industry and the tin plate industry, we feel that the American dye industry will get on a footing that will insure it against any foreign competition. For a time it must be protected. We look and hope for an early action in this matter, and feel that a number of manufacturers are ready to put into effect plans for greatly increased production as soon as this protection is assured.

"The trend of prices during the year was downward and very rapidly on some colors. Prices of raw materials increased in many cases, which shows that the industry is making rapid headway. It must be remembered, however, that it is still only a precocious infant and needs paternal care of the Government until it reaches the adult stage, when all can be assured it will give a good account of itself against the adults of all countries. Early, favorable action by Congress is all that is needed to turn this industry loose in the Struggle for Survival of the Fittest."

Much Work to Be Done

HERMAN A. Metz makes the following remarks regarding the dyestuff industry in 1919:

"We are no doubt making more or less progress in the way of bringing out additional colors from time to time but nothing startling has been done. What we are making are the old line colors that can be produced without very elaborate installation.

"On the colors derived from anthracene, such as alizarines and vat colors, little progress has been made although some have been produced in a small way but at very exorbitant prices. There is no doubt that in the future we will produce all the bulk colors in this country and no more will be imported regardless of the tariff, but on the so-called fast colors, much progress must still be made before we can even consider ourselves independent of the German plants."

Industry Hampered by Opposition

"THERE is nothing to be said about the dyestuff industry of any special importance. The manufacturers have been struggling for the past two years the best way they could with the chemical help obtainable in this country and have, as was to be expected, run into the old opposition of the buyers who want to buy cheap," says E. C. Klipstein, of A. Klipstein & Co.

"For the past six months they have left no effort untried to bring in competing German products so as to force the American manufacturers to lower their prices. In addition, they are playing the same old game of rubbing one American manufacturer against another with the same end in view. In fact, they are making a perfect exemplification of the old Greek in Aesop's Fables, who killed the goose that laid the golden egg. It only remains to be seen in this instance whether the goose escapes."

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Increased Demand for Natural Dyes

THERE has been a steady increase in the demand for natural dyes such as logwood, quercitron, flavine, sumac, etc., for a considerable length of time, in the opinion of J. S. Young & Co., Hanover, Pa.

"Imediately after the signing of the armistice, business for a time was at a standstill, particularly in the textile mills, which naturally reflected on the dyestuff industry, but these conditions have since changed very materially from idleness to productiveness to take care of the large gaps created by the war, and we are, therefore, very optimistic as to the future of the dye industry, especially if it is given the protection offered by the Longworth bill," says E. J. Brooks of that company.

Will Supply 25 Per Cent. of Needs

"It has been computed by reliable authorities that for many years to come natural dyestuffs will supply the whole color requirements in the proportion of 25 to 75 per cent. to be supplied by the artificial dyes. This has been brought about in a large measure by chemists and dyers who by their research work and experiments have developed new methods of using natural dyes, as well as discovering new mordants, etc.

"We believe the best use for natural dyes is for wool, silk, leather, wall paper lake and wood. Natural dyes are especially adapted for dyeing and weighting of silk and dyeing of leather, and we hardly believe that artificial dyes will ever be able to compete. And we might advise that it is a well-known fact that artificial blacks are judged according to their ability to compare with logwood.

Prices Advanced

"Due to the heavy demand for stick logwood, from which logwood extract and hematine are manufactured, the suppliers have increased the price of this raw material considerably during the last two or three months—so much so that the present price of our standard logwood extract of 51 deg. Twaddell is 15c. per pound, solid 23½c. per pound, and logwood crystals 30c. per pound.

"The present price of our quercitron bark extract of 51 deg. Twaddell is 7c. per pound; domestic refined sumac extract of 42 deg. Twaddell 7c. per pound; domestic refined sumac extract of 51 deg. Twaddell 8c. per pound, and stainless sumac extract, manufactured from Sicilian leaf, 15c. per pound; divi divi extract 6c. per pound, and lemon flavine 90c. per pound.

"There is a very large demand for all of these materials, and we have just about all we can do to keep abreast of our orders, and have every reason to believe that these conditions will continue."

The Dyewood Situation

By *Edward S. Chapin,* Boston, Mass.

THE dyewood situation at the beginning of 1920 can be aptly described by an incident that occurred in a visit I paid last month to the plant of one of the largest manufacturers of dyewood extracts of this country. As I approached the plant I noticed that certain fields and places that were ordinarily covered with wood were bare. "Why, where is all your wood?" I said, turning to the driver. "Well, sir," responded he, "wood is mighty skurse. They justh good two steamers in the other day, and they all is feeling mighty good." This for a plant that will, as a matter of ordinary precaution in normal times, have on hand in and around the plant not less than a million dollars worth of wood.

Bythe term "wood" is meant logwood, fustic and brazilwood.

The scarcity of wood in the United States is due to lack of importation of dyewoods during the past year; approximately 80,000 to 100,000 tons of wood have been imported, but much more could have been used if the wood could have been obtained. This importation corresponds roughly to a value of $3,500,000 of raw material. 100,000 tons of dyewoods will give approximately 25,000 tons of 51° extract. This corresponds in pounds to 50,000,000 pounds of extract; and to a money sale value of $7,500,000.

The figure of 100,000 tons of wood imported in 1919, is about double the amount of pre-war importation! and the total money value of the raw material is about four to one.

Reasons for Shortage

Two reasons mainly are the cause of the present shortage and high price of wood: first the fact that European countries are coming into the raw material market and bidding for wood; and second the continued large demand for dyewood products. Transportation problems affect the situation materially; the freight rate from the West Indies north is about three times the normal rate before the war. Then even in the West Indies there is a scarcity of labor and a slowing up of production. Less work and higher wages seems to have reached the Antilles.

For these reasons the dyewood market is very firm and prices tend to advance. This is particularly true of logwood, for which the demand is especially active. The hypernic situation is noteworthy and significant. Hypernic Extract is the trade name of the extract from brazilwood. The demand for hypernic before the war was only moderate; today it is large and insistent.

The continued large demand for dyewood products in industry during 1919 merits careful analysis in view of the fact that for two years, 1918 and 1919, the American manufacturers of coal tar dyes have attained pre-war volume production on the big bulk item colors. The figures for pre-war consumption of coal tar dyes were 30,000 tons; for 1918 the American manufacturers, according to the report of the Tariff Commission,* produced 57,155,600 pounds, and incomplete figures for 1919 show that this poundage will be closely approached and possibly when all figures are in, surpassed.

Unusual Demand for Extracts

That 50,000,000 pounds of dyewood extracts or paste were used in industry during 1919, more than twice the average for the five years immediately preceding the war, is due to several reasons.

During 1915-1916 when the importation of German colors had ceased, and before the American manufacturers of coal tar dyes had reached volume production, many concerns were forced to use natural products for dyeing, concerns in which the use of natural dyestuffs had almost ceased before the war. In certain instances it was found that results and styles produced were very satisfactory, unexpectedly so, and these styles are continued.

During the same period the concerns who had always used natural dyestuffs for certain special purposes, with the experience of years to guide them, enlarged the output of styles that could be produced with natural dyes.

New methods of applying natural dyestuffs giving new and improved results as compared with pre-war processes and results, have enlarged the usefulness of natural dyestuffs and increased the demand.

All these reasons combine to explain the persistent demand for large amounts of natural dyestuffs to be used in dyeing fibres and materials. The world demand for textiles and materials of all sorts is so acute that the extra supplies of materials dyed with natural products are readily absorbed, as well as the large amounts of goods and materials colored with a steadily increasing output of coal tar intermediates and dyes.

Extension of Use

The reasons why dyewoods, especially logwood and hematine, can be used to advantage in dyeing for more purposes than was generally known before the war, I considered in some detail in a paper prepared for the American Chemical Society in 1918 on the subject, "Natural Dyestuffs—An Important Factor in the Dyestuff Situation."* The fact that natural dyestuffs should be used for certain purposes for which they possess special merit, and that coal tar colors should be used for those purposes in which they possess special merit is now better understood than formerly. Both coal tar dyes and natural dyewood products possess unique and separate fields of usefulness that do not conflict in a well ordered scheme of dyeing. During 1915, 16 dyewood products were used for all sorts of purposes in dyeing, for many of which they were not naturally adapted. With the coming into the market of large quantities of direct and sulphur blacks, acid and chrome blacks, a realignment ensued according to the specific adaptabilities of the varying products. In some fields the use of logwood decreased and in some instances ceased almost entirely: as for instance in the dyeing of black on cotton hosiery, for which logwood is not primarily adapted, but direct blacks and sulphur blacks are. In the woolen and worsted field, despite the coming of large quantities of acid and top chrome blacks into the market, the extensive use of logwood and hematine has continued on account of the special great advantages proved during the war, and today domestic demand is far in excess of supply. The demand for dyewoods in the leather and silk trades was large before the war; and today this demand is even beyond the fondest dreams of the most ardent advocate of the value of natural dyestuffs.

New purposes for which dyewoods have been used in the past few years were worked out at the expense of private companies, and so may not be published. One fundamental fact that has made a great difference in the attitude of the woolen and worsted mills toward logwood, and which may be published, is that properly dyed logwood or hematine blacks are of great fastness to light. The proper method is to use enough hematine to saturate mordant and fibre. A small percentage of hematine toned with fustic and red gives a black that looks black, is very cheap, and is not especially fast. A dyer friend wrote last year. "I am having trouble with my logwood blacks. They are too green and fade." Answer, "Cut out your fustic and double up on your hematine. This gives rich, fast, blue blacks." The advice was followed and then there was no trouble. Increasing amounts of hematine enrich the shade, intensify the bloom, and *ensure fastness.* The proper maxim in dyeing logwood blacks on woolens and worsteds is, "Hematine, more hematine, and then more hematine."

* Report on Dyes and Related Coal-Tar Chemicals, 1918.

* Published in The Journal of Engineering Chemistry of the American Chemical Society, Vol. 10, No. 10, page 795, October 1918.

OSCAR HEINEMAN CO.

Additions at Chicago and New Plant at Kincaid, Ill.

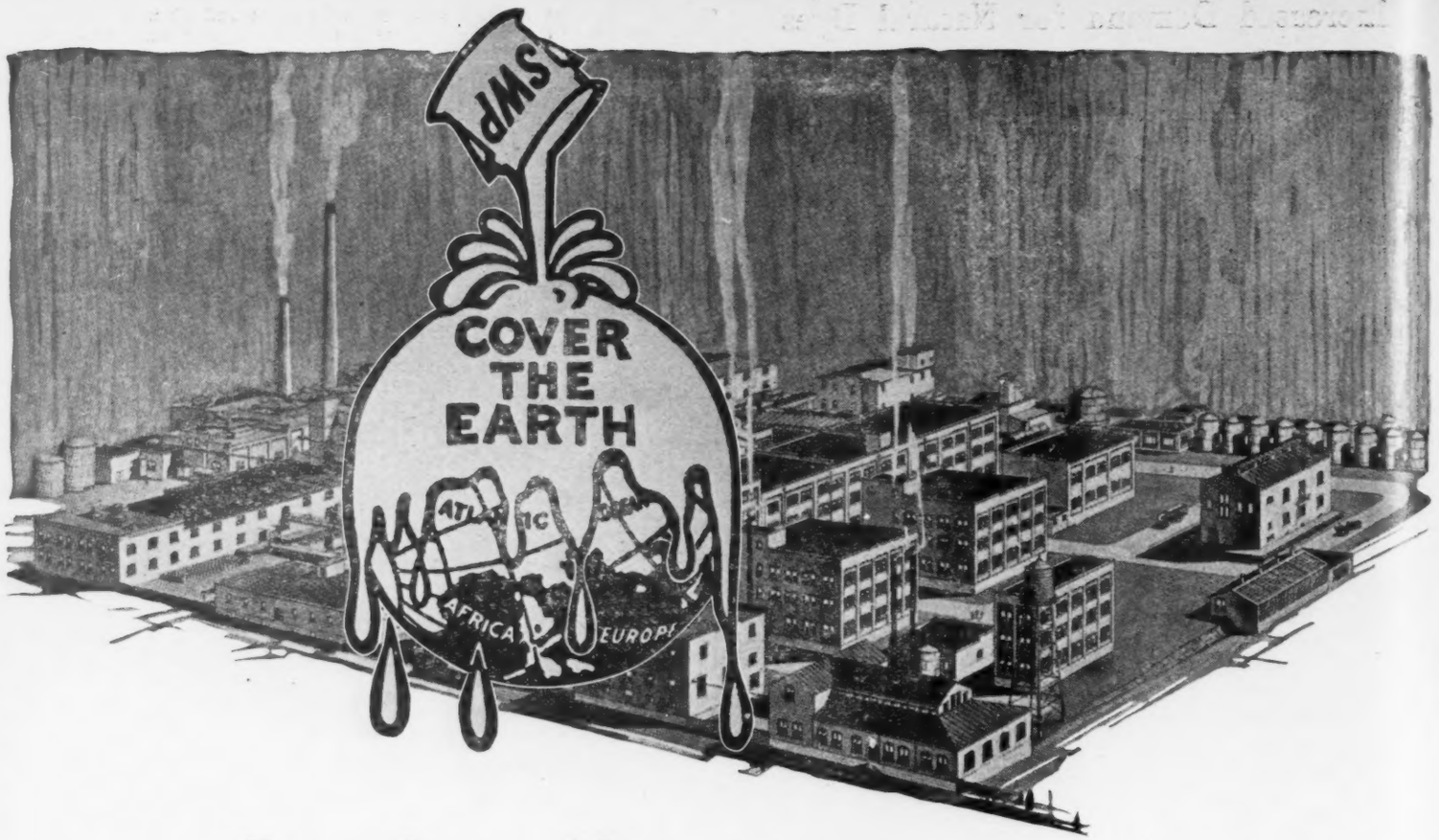
During the year 1919 various improvements and additions were made by the Oscar Heineman Co., of Chicago, manufacturers of thrown silks, with a view of keeping up with the rapidly increasing demand for their silk yarns. Early in the year the new No. 3 mill, construction of which was started in 1918, was entirely completed and the work of moving in and erecting machinery was commenced. This mill was filled up and in full operation by the middle of the year.

In addition to the construction of this building it was found necessary to provide additional space for office purposes, and arrangements were made to construct an additional story, about 50 x 120 feet in size, above the roof of the old offices, which occupied one end of the old No. 1 Mill. This work was started early in the year and offices were completed and occupied late in December, 1919.

Lunch and Bath Rooms

The Oscar Heineman Co. also during the year decided upon the construction of a branch plant at Kincaid, Ill. This work was started late in the summer, and at the present writing the building is completed and ready for the installation of machinery. The Kincaid plant is a one-story building, approximately 80 x 180 feet in size, with outside boiler room, and is a very complete plant, including office, lunch room, silk storage vault, bath rooms, as well as the best of toilet and wash room fixtures for employes.

All the above work for the Oscar Heineman Co. is being handled under the direction of Lockwood, Greene & Co.'s Chicago office.



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Sees Brilliant Future for American Dye Industry

Dr. Herty Looks for Great Advancement After "Duplicative" Stage

By *A Member of the Staff*

ONE of the leading figures of the year 1919 in connection with attempts to insure a permanent American dye industry has been Dr. Charles H. Herty, editor of the *Journal of Engineering and Industrial Chemistry*, and former president of the American Chemical Society. Acting as a member of the Dye Advisory Committee of the War Trade Board, Dr. Herty became nationally known as an adherent of adequate protection for American dyestuffs. The knowledge of his disinterested viewpoint gave added weight to his opinion.

It was in September, however, that he came into even greater prominence through his mission to France, undertaken with the approval of President Wilson, to negotiate with the Inter-Allied Reparation Commission for sufficient German vat dyes to cover six months' requirements of domestic consumers. The story of his successful efforts has been completely covered in previous issues of this publication.

In order to get an expression from Dr. Herty of his opinion as to the future of the dyestuff industry in this country, he was interviewed by a representative of TEXTILE WORLD. It was hoped especially that Dr. Herty would be able to furnish some interesting information regarding the industry abroad, but he admitted frankly that pressure of business prevented him from investigating dye factories in England and France. This caused him considerable regret as he realized the unusual opportunity which was his. Unfortunately, however, the lack of concerted action on the part of dye consumers in this country resulted in considerable delay in the final closing of negotiations, and Dr. Herty found himself forced to return home without the satisfaction of having investigated manufacturing conditions in other countries.

Importance of the Industry

Nevertheless he brought with him expressions of opinion from men prominent in England and France which are both interesting and inspiring.

In a conversation with Lord Moulton, head of British Dyes, Ltd., and English representative on the Inter-Allied Reparation Commission, the latter told Dr. Herty that he believed the peace of the world to be more intimately bound up with the success of the dye industry in England and America than with any other question. It is understood that Lord Moulton's opinion is based on the relation between dye manufacture and gas warfare. The latter is generally considered the most vital feature of modern warfare and it is freely predicted that it will play an increasingly prominent part in the future. The need of the maintenance of well equipped dye plants which may be turned to the production of poisonous gases has been emphasized many times.

Frenchmen Enthusiastic

In addition, Dr. Herty was guest of honor at a luncheon given by the President of the French Society of Chemical Industries. Among the prominent Frenchmen present on that occasion were Monsieur Paul Kestner, president of the society; Monsieur Gerard, secretary; Professor Matignon of the College of France, who writes the editorials in *Chimie et Industrie*, the journal of the society, and Monsieur Duchemin, president of the French Syndicate of Chemical Industries. The general agreement among the guests at the luncheon was that the development of the dyestuff industry in France is essential to the safety and security of the nation.

Interesting interviews were held with Monsieur Frossard, head of the new national organization known as the Societe Nationale des Matieres Colorantes, formed to develop a national dye industry in that country.

DR. CHARLES H. HERTY

The organization mentioned above, of which M. Frossard, is the head, proposes to utilize as part of its plans, factories which formerly existed in France as mere assembling plants, and which were dependent upon Germany for practically all intermediates.

French Protection Three-Fold

Dr. Herty called attention to the protection which the French Government has created in order to support the new dye industry represented by the organization just mentioned. The Chamber of Deputies recently passed by unanimous vote a new tariff bill on all chemicals, and one of the special features in connection with that bill is the stipulation that on synthetic dyes and pharmaceuticals there is added a special license provision against German products. The bill as originally introduced by the Ministry provided that dyes from all countries could not be imported except under license, but it was subsequently amended to cover German colors only.

The bill went to the Senate and the licensing feature was retained. The measure was passed with only one dissenting vote, and is now a law.

Dr. Herty states that the report which went along with the bill when it was introduced contained the same arguments and the same explanations as the statement which accompanied the Longworth Bill when the latter was favorably reported to the House of Representatives. He added that the two statements might almost have been written by the same person, so similar were they in every detail. The reasons given for the failure of France to build up a self-contained industry prior to the war were identical with the conditions in this country which have been stated and re-stated so many times. There as well as here the dye industry was purely German owned.

Majoration Co-efficient

In addition to the licensing feature referred to above, the French have a law providing a "majoration coefficient" which gives an Inter-Ministerial Committee the power to multiply the normal duties on any substance needing protection by any fraction up to 3. Subsequently, as the industry gets on its feet, this committee again has the power to reduce this coefficient and work it down to 1, so that the normal tariff prevails.

Consequently the French dyestuff industry has a three-fold protection: the normal tariff, the majoration coefficient, and the license provision against German products.

Dr. Herty emphasized again, however, the value of the public discussion which has been evoked by the dye licensing proposition in this country. He believes that the final measure adopted will be a lasting one, as it will result from the best thought of dye manufacturers and dye consumers instead of being purely a Governmental provision hastily passed as a law.

German Cartel Hopeful

Dr. Herty's experience in Germany and his successful attempts to obtain an option on the remainder of the six months' vat dye needs of American consumers not covered by the stocks held by the Reparation Commission are well known to readers of this publication.

Dr. Herty states that the head of the German Cartel was extremely courteous to him. The latter made the significant remark, however, that the Cartel hoped later on to re-establish connections with America, but that it was now too early to think about that.

Broad Future for America

Dr. Herty's vision of the future of the American dyestuff industry is a most inspiring one.

"We have been going through the 'duplicative' period of the industry in this country," he said. "In other words, we have been doing things which have already been done in other countries. But we will never be satisfied until we do something different and better.

"I am convinced that as soon as this 'duplicative' period is passed and men in the industry can apply themselves to pure research problems, we're going to have wonderful development here. In some establishments, both the 'duplicative' and the research work along new lines are being carried on at the same time, but the latter has not yet come to the surface and will not until the former work is finished.

"The American chemist is going to do two things: One: Increase yields and therefore cheapen the cost of production. Two: Develop new lines of research in connection with dyestuffs and open up new chapters in the industry.

"The American has never been known to be a copyist. He is forced to be one at the present time in order to keep our mills running by supplying them with the necessary colors.

"If Congress comes squarely across with a clean cut protective measure which will induce capital to go ahead and will leave the chemist free in thought with the conviction that our future is assured, we're going to see a wonderful development not only of coal tar chemical manufacture but of all branches of chemical industry.

"In the course of a decade, America will be the leading country in chemical lines, and this will be due to the efforts of the present young American chemists."

Readjustment in Industrial Chemical Prices

War Time Levels Disappear—Sluggishness Lost at Year's End

THE year 1919 witnessed a complete readjustment in the prices of industrial chemicals, mostly in a downward direction. This was, of course, the expected development in view of the extraordinary high levels which most materials had reached under the stress of war conditions.

Demand was for the most part of a sluggish nature. Consumers had apparently adopted a hand-to-mouth policy of purchasing needed chemicals. It was not until the fall that production difficulties resulted in scarcity of many important items. The reaction which followed placed producers in control of the situation on these materials and spot lots brought premiums varying with the particular circumstances affecting the sale. The year closed with most materials in a firm condition.

Heavy Chemicals

Bleaching powder, caustic soda, and soda ash, all of great interest to textile manufacturers were among the leaders at the year's end. These three markets are essentially producers' markets. Output is sold quite well ahead and as a result quotations are on a level with or higher than the rates ruling at the beginning of 1919. Bleaching powder at the end of the year ranged from 2¾ to 3½ cents, about on a par with prices at the beginning. Caustic soda sold from $4.50 to $5.50 per hundred pounds for the 76 per cent. material, representing from 25 to 50 cents increase over initial prices. Soda ash showed little change from the twelve-month period.

Formaldehyde Soars

Formaldehyde is one of the few materials featured by a radical advance.

Calco Calco

Intermediates of exceptional purity assure quality and uniformity in the resulting dyestuffs.

CALCO INTERMEDIATES:

Nitro Benzol, Aniline Oil, Aniline Salt, Beta Naphthol, Dimethylaniline, Dinitrobenzol, R Salt, G Salt, Sulphanilic-Acid, Xylidine.

Calco

The resulting Calco Dyestuffs are well known for their uniformity of strength, shade and solubility.

ACID – Scarlets, Crimson, Orange, Yellow.
CHROME – Brown, Black, Blue, Orange, Yellow.
BASIC – Methylene Blue, Methyl Violet.

Calco Quality Intermediates

The Calco Chemical Company

~ Dyestuffs and Intermediates ~

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Bound Brook, New Jersey, U.S.A.

New York Boston Philadelphia Chicago

Calco Calco

2

Shortage of stocks began to make itself felt some months ago with the result that quotations soared until at the end of the year prompt shipment brought 50 cents, as compared with the January, 1919, price of 16 cents.

Price Declines

Prominent among the chemicals featured by sharp declines during the year was acetone. This dropped from 25 to 15 cents. A similar depreciation occurred on sal ammoniac, the white granular easing from 23 @ 25 cents to 14 @ 15 cents. Acetate of chrome, 20 degree, reflected the decreased output of mineral khaki and fell from 10 @ 11 cents to 5 @ 5½ cents. Copperas was in the same class, going from 2 @ 2½ cents to 1½ @ 1¾ cents. Less marked easiness was noted in sugar of lead, the brown going from 15½ @ 16½ cents to 12½ @ 13 cents, and the white from 17 @ 17½ cents to 14 @ 14½ cents.

Potassium Salts

In the potassium salts, the bichromate which was quoted at 39 to 41 cents at the beginning of the year was priced at 30 to 32 cents the last week of December. A sharp advance in November, however, brought this material up to the previous levels, after which readjustment took place.

The chlorate declined during the year from 39 @ 41 cents to 15 @ 16 cents.

Permanganate dropped from its record level of $1.35 @ $1.60 to 65 @ 70 cents at the year's end.

Soda Salts

In soda materials, the acetate broke sharply during the year, being quoted at 20 to 25 cents in January and at 7 cents in December.

The bichromate experienced an unusual year. Extremely low prices were made by producers in the early fall, contracts being taken at 8¾ to 9 cents. Later scarcity developed, however, forcing prices up so that quotations at the end of the year were 18 to 20 cents, as compared with 17 to 18 cents at the beginning. This does not represent the full fluctuation of the year, however, since a wild flurry in November brought the price up above that of bichromate of potash.

Bisulphite of soda, 35 degrees fell during the year from 6 @ 8 cents to 1½ @ 2 cents.

Nitrite of soda which was quoted at 28 to 30 cents in January, 1919, was priced at 14½ to 16 cents in December. During part of the year, however, scarcity had forced prices on this material to a normal condition.

Yellow prussiate of soda had a year of ups and downs finally closing at 24 to 26 cents as compared with the initial figures of 40 to 42 cents.

Cream of Tartar

A price decline accompanied by a closing of the gap between inside and outside quotations featured cream of tartar. The price at the end of the year was 55 to 56 cents, as compared with the opening figures of 64 to 78 cents.

Tin Materials

Declines also featured tin bichloride, 50 degree, and tin crystals, the former going from 28 @ 29 cents to 21 @ 22 cents, and the latter from 65 @ 70 cents to 42 @ 42½ cents.

Acids

Acetic acid, which was quoted in January, 1919, at $4.91 to $5.16 per hundred pounds, carried a price of $2.75 @ $3.50 in December. The latter figures, however, represent an appreciation from the prices ruling during most of the fall when $3.00 was the outside quotation.

Citric acid declined by slow stages from $1.25 @ $1.26 in January, 1919, to 84 @ 85 cents in December.

Tartaric Acid at the end was quoted at 70 cents as compared with 85 cents at the beginning.

December prices on the important acids—muratic, nitric, and sulphuric—showed little change from January levels. Sulphuric acid, however, experienced a wild flurry in the fall when the 66 per cent. material soared to $40.00 a ton and better, later dropping to its normal level.

Alkalies

In addition to the strength in caustic soda and soda ash previously mentioned, aqua ammonia and borax have enjoyed a firm year with prices at the end stronger than those at the beginning. Caustic potash, 70-75 per cent. dropped from 55 @ 66 cents to 23 @ 25 cents. Sal soda eased from $1.60 @ $2.10 per hundred pounds to $1.35 @ $1.60.

Earths and Pigments

Chrome yellow sagged during the year from 30 @ 32 cents to 24 @ 25 cents. Fuller's earth, powdered, appreciated by 50 cents being quoted at $1.50 to $2.00 per hundred pounds at the year's end.

Oils

Little change is noted in December, 1919, prices on oils as compared with those of January, 1919. The exception to this rule is olive oil, denatured, which was priced at the end of the year at $2.50 per gallon as compared with initial quotations of $4.00 to $4.25. Within the past few weeks, however, an upward movement has started again bringing the material up to $3.00 or better.

Adhesives and Sizing Materials

During the year corn dextrine dropped from $8.00 @ $8.50 per hundred pounds to $6.20 @ $6.40. Corn starch showed little change. British gum sagged from $7.35 to $6.50 @ $6.70.

Tapioca flour declined from 15 @ 15½ cents to 6 @ 9 cents. Potato starch eased from 11 @ 12½ cents to 7 @ 8 cents. Wheat starch depreciated from 10½ cents to 7½ cents. Sago flour eased from 9½ @ 10 cents to 6 @ 7 cents.

Blood albumen became nominal at the end of the year while egg albumen shows little change.

Gum arabic which was quoted at 29 to 30 cents in Jan., 1919, for amber sorts carried price levels of 16 to 16½ cents in December.

The Future

The general sentiment in the chemical market as the new year came in was one of confidence. Adjustment from war conditions appears to have come much more rapidly in this industry than in others, and a normally healthy year is looked for.

Americanism Fostered by Industry

(*Continued from page* 197)

home and to send food and clothing to his friends and relatives. So long as he feels he is doing something for his people abroad, he is happy, and will work harder. Up to the present time the only way he could do this was to send money through his banker which could buy nothing when it got there, or to trust his precious parcel to an export company which had little assurance of delivery.

The Inter-racial Council, cooperating with Mr. Hoover, is now able to say to the immigrant:

Buy a Hoover food draft at the nearest bank, send it to a relative or friend abroad and for every dollar paid for it, your relative or friend can get the quantity of food designated at the nearest warehouse.

Every industry that wants to get the good will of its workmen by helping them do the things nearest their hearts, will start a racial committee in its plant and will contribute to a fund and buy warehouse checks to help starving friends and relatives of its workmen. Is it a good investment? It has a raise in wages and the glad hand beaten all hollow, because it shows a genuine human interest in the men themselves. The Inter-racial Council will gladly send full details of the plan.

Selling Americanism

The question is, Can the industries of America sell Americanism to the foreign born workmen so that they will prefer to work in America and send for their families and friends? To do it, it must become Bolshevist-proof by eliminating every cause of Bolshevism; it must treat its immigrant workmen squarely, without discrimination, and see that they get fair renumeration, an opportunity for advancement and the respect that is due any and every workman.

The next question is, Can the banks of America sell Americanism to the foreign born so they will buy homes in America, put their deposits in American banks, buy American securities and want to live in America? If not, then the American job will not keep those workmen here after they have saved enough money.

Can the American public school sell Americanism to the foreign born, so its advantages for his children and its opportunities for success with its story of American institutions, history and achievement overbalance the influence of his home and build in his heart the aspirations and ideals of the new land?

These will all fail unless the laws and officials of America can sell Americanism to the foreign born in terms of justice. It is the history of mankind that they will lay down the best jobs, and forsake their homes and sacrifice their comforts to live under a reign of justice.

To sell Americanism in terms of justice, opportunity and rewards, is a wholly practical matter. It is a salesmanship proposition. It is a part of the responsibility of business.

Aims of Inter-Racial Council

The Inter-Racial Council is the first trade organization on Americanism. It is frankly in the field to submit information and measures to industries by which they can get and keep immigrant workmen. It seeks to interest bankers in the saving of immigrants as a means of stabilizing production and of maintaining law and order, as well as increasing American prosperity.

It believes in applying American business efficiency to the foreign language press.

It believes the moving picture screen is one of the greatest means of Americanization in this country and is engaged in putting on pictures, which explain America and are pro-American throughout, in the moving picture houses in this country.

The Council sees in the various racial societies, numbering some 42,000, a great agency for America—not to be suppressed, but to be used for the good of America. They helped win the war. They helped restore order in the new republics. They can help build America and are ready to do so with the cooperation of Americans.

There is nothing inimical to American interests in the immigrant life of America. There is a great deal that can be misused by the wrong agencies; there is much that can be wasted by neglect; there is much that can be turned against American progress by injustices.

There is a great potentiality for Americanism in the press, the societies, the business organizations and the social life of our immigrants. It will respond to economic opportunity and rewards and to genuine friendships that are the outgrowth of business relationship.

American business holds in its grasp the one effective answer to Bolshevism—it is not Americanization. It is Americanism pitted against all of the forces of the old world—to win.

LACE COMPANY ENLARGES

The American Fabrics Company, manufacturers of laces, embroidery trimmings and tapes, at Bridgeport, Conn., are having additions of two stories each placed upon two separate buildings by the Aberthaw Construction Company, Boston. The types of construction in the two buildings are totally different, one being reinforced concrete of massive design, while the other is mill construction, consisting of brick walls and heavy timber interior.

The concrete building, which is used for the manufacture of lace curtains, measures 80 feet 2 inches in width by about 200 feet in length. It has brick trim around the windows and cornices and is fitted with steel sash. The bay dimensions inside the building are 15 feet 6 inches x 25 feet 6 inches, mushroom concrete columns being placed at each intersection. The floor slabs are 12 inches thick, while the roof slab of the same thickness is covered by a cinder concrete fill supporting the three-ply roofing.

Office and Shipping Building

The other building, which is used partly for office and partly for inspection and shipping purposes, measures 66 feet by about 190 feet in length, besides the stair tower at one end. This building, which has story heights of 16 feet between finished floors, and which is planned for a fifth floor at some later date, has brick walls with arched windows. The column spacing inside is 20 feet 4 inches x 10 feet from center to center, the columns and floor beams being of southern pine. The beams in each case measure 12 x 16 inches in section, while the columns in the third and fourth stories are 10 inches square and 9 inches square, respectively. The roof consists of 2 x 12 plank, laid upon the roof beams and covered successively by ⅞ inch matched pine and four-ply tar and slag roofing. It is expected to turn the buildings over to their owners shortly after the first of the year.

It may be remembered that this plant, which before the war was owned and operated by German interests, was taken over by the alien property custodian and is now in American hands, having been purchased by interests connected with the American Chain Company of Bridgeport.

Newport Dyestuffs

NEWPORT TRADE MARK

We are manufacturing a very extensive range of high quality dyestuffs for all purposes.

Many of these dyes were known under a great many different names in the pre-war days. Before applying for import licenses, let us have your inquiry, as we may now produce the color you desire.

Newport Chemical Works, Inc.

DELAWARE CORPORATION

PASSAIC, NEW JERSEY

Branch Sales Offices:

BOSTON, MASS.
GREENSBORO, N. C.
PHILADELPHIA, PA.
PROVIDENCE, R. I.
CHICAGO, ILL.

Producing Better Men

(*Continued from page* 195)

courage these parts selected to grow and develop into something better.

The Law of Analogy

"The second natural law, the Law of Analogy, means that there is a relationship between all things in existence. It is necessary for a man to understand relationship—for example between the departments of his business. Isn't it true that there must be balanced departments—the people of each department related one to another—or that otherwise the department and consequently the business will not succeed?

"How far may analogy be carried? It means that I am related to you and you to me in a way we may not understand—that we are not antagonistic. You are related to the people in your organization, I am also related to them although I haven't seen them.

"One day on the coast of Maine I saw many islands. I said to myself: 'Those are all separated from the mainland.' But then I thought 'How foolish; these islands are not separated; I will not let this film of water fool me. I have stood many a time on a platform and thought that the people are all separate from me. I am wrong. These are not islands; I am not the mainland. We are all related. These people are my people, a part of me.'

"Learn to say 'These are my people,' and to ask 'Oh, God, give me wisdom that I may guide these so great a people of which I am a part.' We are one. Capital and Labor should never have been used as two words. It's all one—it's mankind. That's what the Law of Analogy means. Understanding of this will give us power.

The Law of Sequence

"We can't get power except by sequence. We must first understand and then love. This means more than the love between man and wife—between parent and child. As an example—Lincoln loved men of both factions; he loved *men*. A hard-headed man hearing a talk on love among people of his organization says 'Tommyrot.' All right. But he himself knows he's got to have friendship in his plant. And that's a right step towards love.

"Man commences with a desire to govern a family, then a community, then a state, then a nation, then a world, and finally worlds. He cannot do this except he follow the law of sequence.

"Suppose you are three steps away from a chair. You must take those three steps in sequence to reach it. You can't take the second step or the third step first.

"We must have a constructive purpose—a desire to produce a constructive result—not to kill off our competitor across the street. If we wish that, we'll take a step in the wrong direction—not towards the goal. If you figure not in terms of more money and more goods, but that you have the greatest asset in your plant—human beings—and work to improve them—they'll work to improve the goods.

The Law of Rhythm

"When you hear good music, there's always rhythm. If there isn't rhythm in your organization or in you, you can't enjoy your organization. It's up to you as it is up to the leader of an orchestra to get rhythm into it.

"Take the rhythm of power. The sun is the greatest power, mechanically speaking. It does something we can't do ourselves. We find difficulty in turning our machinery over regularly that it may make progress. The sun takes all this great world and turns it over every twenty-four hours without discord and without friction. And yet in a plant we see a president damning a superintendent, a superintendent damning a foreman, a foreman damning a worker. And each thinks he's showing power. Foolish! Power works with rhythm; failure grows from discord.

"Go into an engine room and hear a clank-clank and a great noise, and you know it's lost motion—lost power. So also in a mill where a president, superintendent or a foreman is making a great noise—it's friction—loss of power.

The Law of Cyclicity

"The fifth law, the Law of Cyclicity, indicates that all things work in circles. The sun causes the world to go in circles. Similarly, what goes from us comes back to us. Let your intent be right, use wisdom and love in your search for power—let your desire be to construct and there will come back to you a desire for your construction.

"Men like to say 'I never had a chance.' They point to everything but themselves as the reason for their failure to obtain power. But did Abraham Lincoln say 'I never can become even foreman of a job because my father was a working man and my mother wasn't a social power'?

"Let a man know that what he gives comes back to him,—he will pour out the best he has, and back will come to him the best that Nature can give.

The Law of Opposites

"There is an opposite for everything in the world. If we came into a dark room at night, we wouldn't bring in a hoe and pick-axe and shovel, and try to fight the darkness and shovel it out. That would be insanity. And yet men try to fight darkness in the ignorance of the men of their plant. In the first case you'd supply the opposite—light; in the second case you should supply wisdom—love—cooperation.

"When we were children, we placed a board on a saw-horse and played see-saw. We were demonstrating the Law of Opposites. If in a factory there's a great opposition on one side, don't get on that same side and try to lift the opposition. It's a tremendous load. Get on the other side and supply the opposite—cooperation.

"You'll find in business today a lack of desire to produce. Are you going to fight it? No, you're going to create a desire to produce. You can do it, you're a creator.

"Throughout history, before going into battle, men have had described to them the booty they would get. It is portrayed to them as three things—now being portrayed by the Bolshevists and the I. W. W. These are: free wealth, free women, and world dominion. They appeal to man's basest nature. We can go out on any street corner with these three forms of bait and get a mob together ready to tear down the United States. That's what Bolshevism is.

"What are the opposites to these three things? The opposite of the lowest animal desire in man is the spiritual desire he has in him. In opposition to free wealth, make him want nothing except what he can earn. That appeals to him; he doesn't want charity. In opposition to free women, make him want to find his true mate. That's a high ideal; he won't want free women then. In opposition to world dominion, there is the desire of man's higher nature to get it only through worthiness—not by destruction or by taking it from some one else.

The Law of Balance

"All things are balanced—have been since the beginning of time. Your life, my life, always is, always has been, and always will be balanced. What we thought was constructive built up life; what we thought was destructive destroyed life. If we are men, we can blame no god, no man, no devil for what we are. We like to think it's hard luck when we fail, instead of weakness—lack of wisdom—lack of love. That's "passing the buck."

"With the knowledge of these seven natural laws you can create what you wish. Disobey them and you fail. You have free will. Choose success or failure."

Actual Experience

After Mr. Leitch finished speaking he introduced Albert Bond of the Packard Piano Co. Mr. Bond stated that he started Industrial Democracy in his plant in the fall of 1913.

"One thing it has done more than anything else," said Mr. Bond, "is to allay fear on the part of the management and the employes. And there's nothing more destructive than fear.

"As an example, a foreman came to me one day and said his men wanted a ten per cent. increase. I told him we'd call a foremen's meeting. We're a small plant, by the way, and have only a Senate or meeting of foremen and a cabinet or meeting of executives. Instead of a House of Representatives, we have a mass meeting whenever necessary. The foremen could not tell any reason for the discontent, so we decided to call a general meeting.

"Let me digress for a few minutes. Men are puzzled to know how to work out the dividend plan. I believe the mistake is that wages aren't linked up with service. When Mr. Leitch first came to me, we went back over five years and took the average earnings of each month of each year, and based dividends on performance as compared with this average. The European war prevented dividends for some time. I advised my men to get other work where they could. Business picked up in the fall of 1917 but we had lost about 100 men. I told the men that we were up against a need of greater production, and that they'd have to supply this themselves or have men brought in from outside. They decided to try the former method. As an example of the success attained, one man cut his piece work rate from 42 to 12 cents and made more money at the reduced amount. This year I proposed a new plan. I established a certain quota to be reached each month in order to get a certain per cent. increase dividend. They reached it in April and May but fell down in June. That was the month in which the demand for a 10 per cent. increase arose in one of the departments, as I mentioned at the beginning of my talk.

"Well, I called a general meeting, and told them they couldn't make their quota. One of the men suggested that I give them their 5 per cent. increase anyway, and let them owe it to me on the next month. I consented and went even further, promising them an extra five per cent. the following month if they'd make up what they had lost together with that month's quota, and also promising not to hold them to their 5 per cent. loss if they failed to reach it. This was well received.

"Then I came to the reason for calling the meeting. I said: 'Boys, we're going back to the first principle on which our very cornerstone is laid—Justice.

"'Would it be fair to grant 10 per cent. increase to one department and not to all? And I can't see my way clear to do the latter. The world needs increased production. Your job is to supply it; our job is to find ways by which you may benefit from bringing about this increased production. A little matter of 5 or 10 per cent. isn't going to stand in the way.'

"After the meeting, a man came to me and told me he was responsible for the men asking for an increase, and added that he was pleased with my proposition.

"After getting figures for July, I found I could grant a ten per cent. increase in wages all through. The next month they earned in dividends 7½ per cent., then 12½ per cent. for the next two months. Last month they earned 15 per cent. in addition to wages.

Labor Turnover

"My labor turnover during the first eleven months of this year was 6 per cent. in and 3 per cent. out. In January we were getting 2-3 of a piano per man per month; now we're getting 1 2-3 pianos per man per month. When you work for quality, you get quantity inevitably. Any increase of wage that's passed on to the public is no increase at all. You've got to absorb it in your plant by increased volume and a better product.

"We cut the 10-hour day to nine hours with no increase in piece rate or wage. In the first month we got 5½ per cent. dividend. Then we cut it down to an 8-hour day and in the first month got the biggest dividend in our history. A certain department produced 7 units in a 10-hour day; 7 in a 9-hour day; and then 16 in an 8-hour day. It's now producing 21 units per day in a 45-hour week.

"Our company has protected the consuming public; we have paid market wages to the workers plus a dividend; we have maintained and increased the quality of our product. To hold down the cost of living, you must hold down the cost of production. The I. W. W. will never preach that."

"That company," said Mr. Leitch when Mr. Bond had finished, "is absolutely square with the public, the stockholders, and the workers. What we need is faith in men."

The last part of the conference was taken up with questions on the part of the mill executives on various details of the plan, such as the basis on which the dividends should be paid, the maintenance of house organs, the use of an honor flag in the department attaining the best record for the month, methods of conducting meetings, and kindred subjects. But John Leitch's last words were: "Forget details and remember fundamental facts."

That's Industrial Democracy as worked out by Mr. Leitch. But he has a vision of it which knows no bounds. He sees Industry throughout the country primarily turning out better men and incidentally turning out better, bigger product. He is not an adherent of capital nor is he a labor agitator. He is trying to evolve a method which will work to the benefit of all—which will in fact wipe out the distinction between so-called Capital and Labor.

The representative of this publication who interviewed Mr. Leitch holds no brief for his business. But never in his journalistic career has he felt more convinced of the rightness of a plan and the sincerity of a man.

Dow Indigo

Midland Blue R
Midland Vat Blue 5 B
Midland Cadet Blue
Dow Indigo

For Sale by
ANILINE DYES and CHEMICALS Inc.
Cedar and Washington Sts.
New York City

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

DOW

South Manchester

(*Continued from page* 198)

which permits the owner to live in one side and rent the other. The rented portion usually lets from $15 to $22 per month, although some rent for more. The cooperative plan of payment is in extensive use and is greatly assisted by the rental of one side of the house. The corporation itself owns many houses, about 275 altogether, and rents them for prices which range up to $50 per month, and as low as $10. Many of the houses in the town have furnace heat, bath rooms, electric lights, and many of the kitchens have gas ranges. The housing equipment, therefore, would be considered of exceptionally high grade for any town.

Farming District Surrounds Town

Regular city conditions are maintained in the community central district, known as the Ninth School District of Manchester, but surrounding this is a farm district with different sanitary regulations. No objectionable live stock may be kept in the village proper, but in the farming district livestock, poultry, etc., are kept, and the type of industrial worker who desires to combine such outside activities with factory work is encouraged to acquire homes in this section. Families whose members are not adapted to straight factory life find this combination of environment very congenial. There are some, also, who will not work in the factories during the summer months, but insist upon work in the fields during that period. This varied environment naturally appeals to a far larger number of families than would town life alone.

Variety of Work

Cheney Brothers' plant imports the raw material for first processes, and works it clear through to the finished product in the one plant. This variety of processes requires a great diversity of skilled and unskilled labor. The cocoons and raw silk must be worked up into fine thread, the making of which requires sorting, washing, combing, spinning, winding and dyeing. A widely varying line of goods are made, with which the public is familiar, and this fact may be illustrated by the statement that there are employed here about a thousand weavers on fabrics running from narrow ribbons to broad heavy tapestries. There are both woven and printed fabrics, with plain weaving and most intricate jacquard work.

Cheney Brothers not only make silk goods, but they build silk machinery. They run a small railway and not only supply the town with electric lights, water and sewage systems, but build houses, make paper and wooden boxes, and care for large land holdings. Their list of employes contains such items as 90 machinists, millwrights, plumbers, pipers and tinners and helpers; 30 electric linemen and electricians with their helpers; 20 engineers, firemen, boiler tenders; 27 painters and helpers; 50 carpenters and helpers; 7 motor truck drivers; 21 teamsters; and an average of over 150 outside laborers, besides watchmen, railroad men, oilers and general mechanics. The company represents, in verity, a wonderfully diversified industry, or group of industries coordinated.

The Melting Pot at Work

Here, also, is a splendid illustration of the melting pot at work, fusing the races into that nondescript product "the American," who should typify our institutions and maintain them. There are workers from many lands at Manchester, as in many other similar towns. It is interesting to note from the records of Cheney Brothers that 75 years ago, when their industry was still small, all of the work was done by native Americans who came from the surrounding homes and farms.

Eventually came immigrants from many lands; first the Irish from the south of Ireland; next, newcomers from Sweden in numbers; then Germans and Danes, and, about this time, Irish from the north of Ireland. Subsequently Italians came in large numbers, and along with them Poles and Lithuanians, with small additions of Greeks, Swiss, French, Scotch, English and Austrians. It is notable that all but the comparatively late comers have been Americanized. It is found that English-speaking men and women are much more easily Americanized, and made to understand and appreciate the institutions provided for them here. Every effort is made to secure the services of native born people, and retain their association with the industry.

School and Recreation System

But ample as have been the provisions for comfort and prosperity in factory and homes of this community, even more impressive, because of its unusual scope, is the school and recreation system provided in the Ninth District of Manchester. It is impossible for a child to grow up in ignorance in this town. It is difficult in other places in this country, and of course in a very great majority of cities compulsory education is adequately enforced. But a long search would be necessary to find a set of conditions in which the relation between a dominating industry and the liberality of its diverse educational system showed a broader comprehension of the principle of attracting rather than of driving people into the latter.

There are five large school buildings, built several years ago by Cheney Brothers. This school equipment is leased by the company to the School District for a nominal rental for each building per year. Operating expenses are met by the town and state. Regular grammar grades are provided, and standardized under state regulations, excepting that these standards are better maintained here than in many other places, this district being notable, even in the town of Manchester.

The State Trade School

But the feature of this school district deserving exceptional mention is the State Trade School. This institution, built by the company, is located in a group of recreation and other school buildings, around a pageant center, and forms an essential unit in binding the educational and recreation equipment of the place, with its specialized industrial education, in such a way that familiarity with its atmosphere is gained from childhood. The technical course in this school for young people thus becomes for many the natural one with which to round out their education. A more attractive and practical inducement for the education of the high grade operatives and the technicians could not be devised. The equipment of the school, while varied and complete for a technical education, gives special attention to the technique of silk manufacture, and is furnished with a splendid outfit of machinery demonstrating all the processes. But graduates are much more broadly qualified, for, in addition to the fundamentals of the textile industry, to which special attention is given, the training of students is complete and very thorough in such things as mechanics, physics, drafting and various kinds of manual training, such as carpentry, cabinet making, architectural and mechanical work, with the idea of driving home the prime virtue, as workmen, of the habits of accuracy and precision in all they do. The course also includes electrical work, tool making and technical clerical training.

The Curriculum

Of exceptional interest also is the

EDUCATIONAL SQUARE, SHOWING STATE TRADE SCHOOL IN RIGHT FOREGROUND, RECREATION CENTER ENTRANCE LEFT OF CENTER VIEW, RECREATION BUILDING ON EXTREME LEFT, AND BARNARD GRAMMAR SCHOOL IN REAR OF RECREATION CENTER ENTRANCE

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curriculum. Classes and their courses are so arranged that boys or girls may enter at any time of the year while the school is in session, and their work is credited to them on a basis of hours of training. The complete technical course requires a training period of 4,800 hours, while out of this total the special textile and clerical course requires 2,400 hours training.

Cooperative Courses

The South Manchester State Trade Education Shop is one of several such institutions maintained by the State of Connecticut for the co-operation of the district school and factory systems. Trade instruction is free to boys and girls residing in the state who are 14 years of age or over and can read and write and understand the fundamentals of arithmetic. This school operates 52 weeks in the year, 5½ days a week, excepting national holidays. Each student is allowed two weeks' vacation upon request. Evening classes are maintained as a part of the course from Oct. 1 to May 1. No student under 16 years of age is admitted to the evening courses.

These co-operative courses are so arranged with local high schools that a student may spend part of the time at the trade school and part of the time at the high school. By fulfilling a certain amount of vacational work during the summer in factory operation training, the combined high school and trades technical course may be completed contemporaneously. This entitles successful pupils to two diplomas, one from the high school and one from the trade school. Such an opportunity is a tremendous advantage to students, and while not unique in Manchester, is worthy of special notice because of the unusual co-ordination of privately-owned and state-owned institutions.

Recreation Work

Recreation is made a subject worthy of its important place at the silk plant community. It is recognized that play is an essential part of life for both young and old, and provision is made for it by Cheney Brothers in a most comprehensive manner. Reference to the illustration showing the recreational center makes clear the fact that ample ground has been provided in the pageant center surrounded by the state trade school, the recreation building, and one of the graded schools. In this pageant center is located an elevated area, finely lawned and tended, and arranged as a stage for entertainments by professional or amateur talent, as well as for speech making, graduation exercises, calisthenic displays, or dramatic performances. It is well lighted for evening use, and suitable for any special decorative work required. Attractive shrubbery is placed in such a manner as to obliterate any harsh lines in the arrangement, which is remarkably attractive from the standpoint of novel and artistic considerations. On the surrounding lawns the audience may be seated in camp chairs, with a clear view of the activities.

Morale of the Students

It is to be expected that children of such a community might display unusual appreciation of the many attractive features of such a place, and an incident witnessed by the writer might be mentioned as a good illustration of this fact. A group of school boys, about a half dozen in number, were hastening from one building to another, apparently somewhat late for school. They were observed to leap the low rails running along the pathways of the pageant center, each boy carrying a stick with a spike in the end, which he appeared to be using as a cane while crossing the lawn. Watching the boys as they reached the other side, they were seen to lift their canes in the air, strip off an accumulated bunch of small pieces of paper and deposit them in a waste receptacle. Then, leaving their sticks in a group in a corner, they scampered without loss of a moment into the school, having apparently enjoyed their work.

The Recreation Building

Reference to the illustration of the recreation building shows its size and character. It is fitted with an up-to-date gymnasium, assembly hall, swimming pool and banquet-making facilities. It has also a set of recreation rooms both for lay and professional people, who can either congregate or segregate from time to time as desired. A regular paid membership of over 2,000 is maintained. While the recreation center is run as a separate institution, self-supporting, it is of general community benefit. Cooperation is naturally maintained with school activities and the organized social life of the place. Some details of the school playgrounds, one of which is illustrated, can be seen by reference to the illustrations. A trained instructor is employed by the association and is in constant attendance at the recreation building throughout the day and evening. Classes are organized for gymnasium work, and boys and girls are taught modern systems of exercising as well as swimming and rescue work. In conjunction with this an outside swimming pool is maintained in a nearby locality with a lifeguard in constant attendance.

The activities of the recreation association are innumerable, and include lectures, banquets and such forms of social amusements as may be carried on by a live community. When weather is propitious these are staged outside, but indoor facilities are ample.

Benefit Association

A benefit association was inaugurated at the Cheney Brothers' plant in 1910. Its provisions are such that faithful service at the works of the company is made well worth while. The objects of this association are to provide its members with a certain income when sick or disabled by accident; to provide certain other benefits to families of members, as well as to pension employes, both men and women, who have fulfilled required conditions as to length and continuity of service. Pensioning begins for a term of service starting at twenty years and running up to fifty-five years, and provides a range of monthly payments extending from $10.80 up to $65; though the latter figure is, of course, rarely achieved, since it involves the longest term of service.

Scientific Management

It might truthfully be said that the Cheney Brothers' plant has had scientific management for seventy-five years. But within the last few years this has been made especially notable by the presence of trained scientific systemizers in the plant. The Gantt system is largely operative and is being pushed to completion. Its results seem to justify the management in an optimistic anticipation of a permanent improvement in some of their administrative procedures as well as in the production of the plant.

Records enabling detailed study of help turnover and its relation to problems of the day have been worked out in elaborate detail and furnish valued data on this subject. This very important item is, therefore, made to present itself in record form, to demonstrate the results of the scientific handling of the social problems which have been treated in such an enlightened manner here for years.

Production Charts

As studies of various departments and their actual and relative production have been made, a vast amount of vital information as to idle equipment incidental to ordinary handling of this industry have been brought to light. Correction of such losses has then been rendered possible through study of these records. A few charts are shown herewith, illustrating how this study has resulted in increased output from several departments. Such a scientific procedure is exactly what high grade oversight of any plant would justify.

There are over 1,800 operatives on the bonus system out of nearly 5,000 employes; the rest are on a day and piece work basis. Time study and operational study are proceeding and in time probably the whole operation of the plant will be on the bonus basis.

By reference to the keys to information tabulated it will be noted on the sample chart, which shows the progress of a department of the ribbon mill, that the efficiency of this department, as indicated by the heavy dark lines in the record for February, is relatively low. The record for the same department in October shows that the efficiency of many operatives had more than doubled and had exceeded the stint laid out by the engineers as the standard day's work for the operative. This latter feature is what entitles them to the bonus and is a pleasing one for the operatives, practically all of whom succeed in making a substantial record beyond standard requirements in a brief time after the stint is laid out.

Study of these charts from month to month is the means by which a management obtains its information of the direction of progress, and is a most satisfactory method of handing condensed information to an executive.

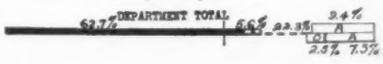
Standard Symbols to Be Used on Machine Record Charts and Operative Record Charts

Symbol.	Stands For.
———	Amount of work an operative did in a day for which we have an estimate or task.
- - - - - - -	Time taken on job for which we have no estimate or task.
———	Red shows portion deducted from bonus for poor quality.
——— - - -	Cumulative work done; solid line, estimated, broken line, not estimated. Red line designates lost bonus.
———	Poor quality of work.

Illustration

Daily Record

The portion of the daily space through which no line is drawn shows how much the operative has fallen behind what he was expected to do. The daily space represents the amount of work an operative should have done in a day.



OPERATIVE RECORD CHART—RIBBON MILL FINISHING DEPARTMENT R2A

YEAR 1919	DATE	Feb 10 – 11	11 – 12	12 – 13	13 – 14	14 – 15	17 – 18	18 – 19	19 – 20	20 – 21	21 – 22
NAME	No	Monday A.M. to Tuesday M.	Tuesday M. to Wednesday M.	Wednesday M. to Thursday M.	Thursday M. to Friday M.	Friday M. to Saturday M.	Monday A.M. to Tuesday M.	Tuesday M. to Wednesday M.	Wednesday M. to Thursday M.	Thursday M. to Friday M.	Friday M. to Saturday M.
Department Total			56.6%		25.8%	54% 12%	43.2%		21.2%	12%	28.4%
Creo Bencivenga	R2A 1										
Lena Zanolli	" 2										
Kate Kaczmarczy	" 3										
Remo Bagnaschi	" 4										
Mary Parakilas	" 5										
Helen Zahnleiter	" 6										
Bertha Weinbaum	" 7										

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The Reasons for His Falling Behind Are Indicated by the Following Symbols

A.—Absent.
B.—Transferred.
C.—Careless, indifferent or dissatisfied.
D.—Defective work by operative.
E.—Machine stopped while being worked on by another operative.
G.—Green operative or helper.
H.—Lack of help or assistants.
I.—Lack of instructions.
M.—Lack of material or material trouble.
O.—Lack of orders or no work.
P.—Poor working conditions on account of lack of power, heat, light, etc.
R.—Repairs to machinery or machinery trouble.
S.—Overtime.
T.—Lack of tools or equipment or tool trouble.
V.—Holiday, vacation or mill closed.
X.—Operator indisposed.
Y.—Smaller job than estimate is based on.

Conservation of Health

Whatever method of operating any department is finally decided upon, the operative's health is always conserved; and no high production scheme is permitted to interfere with this important fundamental for a moment. Sometimes, however, operatives themselves need to be restrained when their earnings become too alluring to them, and when reference to production charts shows that the layout of work has been reached and passed by them.

Cafeteria

An account of this big plant would be incomplete without a passing reference, at least, to the refectory provided by the company. The prices at which food is supplied entail a small loss to the company, but one cannot but wonder at them in spite of that assertion. They are far below those to be found in most places.

Lessons to Be Learned Here

At a time in the history of the United States when thoughtful men are wondering whether the ills of private ownership can be cured, and when the burden of education, both industrial and civic, seems not only crushing, but almost hopeless, to some people here is an inspiration. An example of integrity of stewardship is here carried out in full faith and measure to the public weal, justifying the private administration of large wealth and responsibilities and demonstrating the civic righteousness of a house possessed of both natural and acquired ability; not impelled by the idealistic aspirations of one restless generation to such undertakings, but quietly demonstrating these attributes through several generations.

The fundamental fact should be emphasized that, while the community efforts of this locality are coordinated in practical fashion into a cogent invitation to remain with it, every young man and woman in the place is surrounded with opportunity to develop the best that is in them, and to make the best subsequent use of their attributes anywhere on earth, in their pursuit of wealth and happiness. If America can offer enough of such things under private ownership, we shall not need to worry about the solution of our social and industrial problems. The need is not for a new Americanism, but for the development and spread of such sterling civic integrity as is to be found at South Manchester.

Existing Forms of Industrial Organization

(*Continued from page* 193)

Against the benefits thus reported from the introduction of Works Councils must be placed certain other considerations. Obviously the Works Council adds to the cumbersomeness of shop management. In place of the prompt, direct decision of the foreman, or other plant executive, committee hearings, protracted negotiation, and long discussion may be required to bring questions to a final conclusion. By reason of its very nature the Works Council does not permit of the same expeditious settlement of matters that is possible where the authority of the plant executives is arbitrary and final. This apparent drawback of the Works Council may prove an advantage if it serves to prevent the abuses frequently accompanying the exercise of arbitrary power. Furthermore, by providing a regular channel for the advance determination of employment questions the Works Council may be instrumental in bringing about a settlement of disputed matters before they develop into strike demands.

The introduction of the Works Council also generally results, at least for a time, in an increase in the number of matters which come up for consideration. Members of the councils, feeling that their position requires them to be active, encourage employes to bring up matters for adjustment, and the employes themselves, stimulated by the ease with which complaints can be registered, are likely to ask for consideration of trivial claims. Experience seems to indicate, however, that this disposition tends to decrease as the Works Councils become more firmly established.

Experience has demonstrated that the self-same form of Works Council may succeed in one establishment and in another fail of its purpose. The explanation often is to be found in differences in the character of the management, of the shop environment or of the workers of the two establishments.

Mutual Confidence Necessary to Success

A feeling of mutual confidence between employer and employes in an establishment has been found essential to the successful introduction of plans of employe representation. So long as suspicion exists, it will tend to prevent the satisfactory operation of a Works Council.

The personality of the manager of the plant or of the executive most directly concerned in the operation of the plant may make all the difference between success and failure. He must be in thorough accord with the idea of the Works Council; he must possess the confidence of his employes and must be sympathetic and tactful in dealing with them. Where the executive is lacking in these qualities, the formation of a Works Council may have the effect of actually accentuating friction and labor difficulties.

On the other hand, a Works Council may be inadvisable in an establishment in which the employer through personal contact and a policy of fair dealing successfully maintains amicable relations with his employes. The employes themselves, being able satisfactorily to adjust claims and secure redress of grievances through personal negotiation with the employer, may see no advantage in a Works Council. This is especially likely to be the case in the small establishment of which the owner is the active head and particularly if it be located in a small community. It is to be noted, however, that some Works Councils are in active existence in establishments which have relatively few employes and in plants located in small communities.

Where the Plan May Prove Inadvisable

Again, the introduction of a comprehensive plan of employe representation may be inadvisable in an establishment where the workers are relatively unintelligent and unaccustomed to organization. To place suddenly in the hands of workers unused to organized action a more or less elaborate piece of governmental machinery may have either of two consequences: (1) The employes, failing to comprehend its meaning and workings, may take little active interest in it, in which case it will lapse; or (2) the employes, suddenly feeling their power, and being untrained to its intelligent exercise, may abuse it. Either of these results is particularly probable in an establishment where a large proportion of the workers are unskilled or are non-English speaking.

Where conditions such as these obtain, a program of intelligently directed industrial betterment work, designed to raise the intelligence of the employes, to better their standards of living, to give them a knowledge of English, to acquaint them with American institutions and to train them in methods of organization may be preferable, for the time being at least, to the introduction of a Works Council.

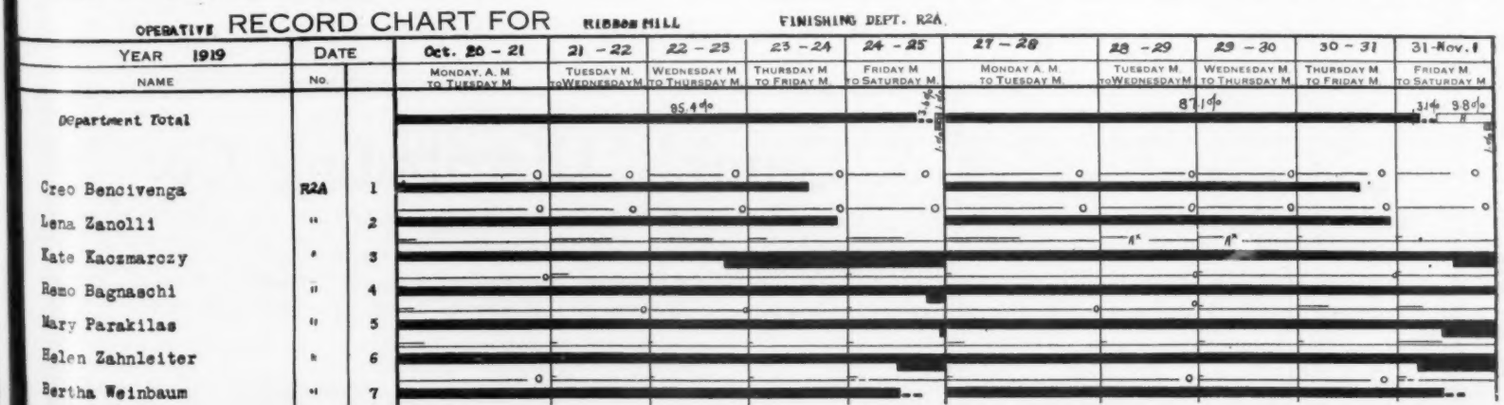
An attempt to replace active union shop committees by a Works Council is almost certain to have unfavorable consequences unless the workers acquiesce in the change. In an establishment which is highly unionized the union shop committees represent a large share of the employes. In a closed union shop they obviously represent all of the employes. In those cases where, under a written agreement between the employer and the union, the union committees are recognized as the regular means of negotiation, they virtually function as Works Councils. So long as the employes prefer to act through such committees, a Works Council set up to supersede them might not only fail to receive their support, but would probably encounter their antagonism.

Plan Must Be Skillfully Introduced

The success of a Works Council also depends in large measure upon the manner in which it is introduced. Such a body set up abruptly without any previous preparation of the ground, or without any participation by the employes in its development, often encounters obstacles.

There is always danger that a Works Council initiated by the employer may be regarded with suspicion. It has been found that such suspicion may be overcome to a great degree by giving to the employes as large a share as practicable in the development of the project. The best results generally have been obtained where representatives of the employes have been called into consultation by the management in the formulation of the plan, or where the employes have been permitted at least to vote upon the question of its introduction.

The spirit in which the employer proposes a Works Council has much to do with the manner in which it is received. Where it is set up by the employer condescendingly as a sort of gratuity it is likely not to meet with a favorable reception by the workers. On the other hand, where the Works Council is put before the workers as an arrangement designed for the mutual benefit of em-



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ployer and employes it is more likely to meet with favor.

The importance of a thorough knowledge of the form, functions and nature of the Works Council on the part of both the plant executives and the employes before it is set in operation has been demonstrated. Since the Works Council is a more or less complicated piece of machinery it requires considerable explanation if it is to be fully understood and utilized. Moreover, the adoption of such a plan generally requires a modification of ideas and practices that have long prevailed in the establishment. It calls for a considerable readjustment in attitude, especially on the part of the foremen and other minor plant executives.

The preliminary education and readjustment is sometimes accomplished by means of conferences and meetings with foremen and with employes at which the features of the plan are explained and discussed. It may be facilitated also by the presentation of the plan itself in simple language and in attractive form.

Are at Least Worthy of "Unprejudiced Consideration"

In evaluating the experience assembled in this report, certain conditions must be taken into account. The first of these is the comparatively brief period during which Works Councils have been in operation.

Experience with Works Councils must further be judged in the light of their origin and of the unusual industrial conditions which prevailed during the war period when most of them were created.

Other collateral influences surrounding their formation should also be considered. Some of the plans were entered upon hastily without a proper understanding of their significance. Others were instituted in a manner which at the very outset prejudiced their chance of success. Still others were organized with a careless disregard of details. Again, the formation of some of the Councils was accompanied by a simultaneous change in management, the adoption of a bonus system, or some other radical change in operating conditions which may in large measure be responsible for their seeming success or failure.

In view of the conflict of experience, it is as yet too early to measure definitely the permanent value of the Works Councils movement. Approximately three-fourths of the employers having Works Councils from whom an expression of opinion was secured declared themselves in favor of this form of industrial organization or that their experience had been favorable. Although further experience may lead to a revision of judgment in some cases, the results thus far obtained with Works Councils indicate that they are worthy of unprejudiced consideration on the part of American industry.

Employment Problems in Textile Industry

(*Continued from page 200*)

swallowed whole else a large portion of it will have to be painfully disgorged. It is not to be applied haphazard else much of it will not fit, but each activity must be undertaken only after a careful analysis of the situation and with the well considered conviction that it will succeed.

All this necessitates a well-equipped and properly manned Personnel Department, directed by someone with tact, experience, initiative and imagination. Such a department will in time become a clearing house for the needs of the workers. They will turn to it for advice and information. Questions of investment of money, legal tangles, income taxes, insurance puzzles, personal difficulties, even family trouble will all be brought to the man who is ever ready to listen sympathetically, put himself in the place of his visitor and give him the best and wisest counsel that he can. Points of friction with overseers or fellow workers will be taken to him for his consideration, and in a large measure the office and the man will be an outlet for the dissatisfaction which would otherwise seethe unknown and unrelieved below the surface.

Someone in the Personnel Department should be a justice of the peace or notary public, so that papers may be sworn to without cost to the employees. The value of such a department is not easily measured because it is dealing, not with material products, but with psychic factors. Yet the reduction in labor turnover, the lessened soldiering on the job and the increased plant spirit which will result will prove that it is well worth while.

Promotions in the Textile Industry

One of the best reducers of labor turnover is to have such a gradation in the jobs that men with increasing ability may step on and up. This is difficult in the textile industry, because so many of the jobs are essentially unskilled and because there are no easy steps from this unskilled service to the positions which require sound technical training. Promotion in the textile plants is also complicated by the fact that so many of the workers are foreigners, uneducated, from the lowest classes and really incapable of advancement. Too many of our textile workers are young men and women who have absolutely failed to make good in school, and have simply struggled along there until they have reached the age when they could go to work. These must always form the great broad base of the pyramid of labor and the wisest attitude is simply to try and make them contented in the work they are doing.

But every possible effort should be made so that men and women of promise do not get into blind-alley jobs. If ambitious they will not be contented, and, becoming restless, will finally leave the mill. Therefore a record should be kept of the educational qualifications of all employes, and especially of those who are trying to educate themselves by reading, by studying through correspondence schools, or by attendance at evening schools or university extension courses. When these facilities are not offered by the city or town in which the plant is located, an educational work may very well be carried on by the Personnel Department so that opportunity will be given to all who wish to increase their knowledge and power. In states where there are university extension courses classes in textile designing in chemistry and in other subjects of especial interest to textile workers may be formed. Unless this educational work is done and opportunities given to the workers for advancement it will be found that the most desirable element of the working force, those speaking English and having ambition, will gradually drop away, and the standard of the personnel will be constantly lowered.

Where promotions to better jobs are not possible promotions to larger pay will often be the solution. Piece work may replace wages with increased production and better compensation. Indeed a constant effort must be made to so distribute wages that quality and quantity of work will have their rightful recompense. Indiscriminate raises for everybody are to be discouraged. The fact that the trade unions have emphasized only the time element in wage payments is one great indictment against them. The value of piece work, especially if a qualitative bonus is connected with it, is that it pays each worker according to his ability. Moreover, if possible, the different jobs should be arranged in an ascending scale so that the workers always have higher jobs before them, summoning them to their best endeavor.

Must Encourage the Ambitious

When promotion by pay is not possible, promotion by praise may often be effectively used. Human nature instinctively craves approval by fellow beings. This is the reason why quarter-century clubs, with appropriate buttons for those who have been in the service of the company for twenty-five years, are more than sentimental nonsense. The plant paper and the bulletin boards can be used to give praise where praise is deserved.

I even venture to suggest that it would be worth while for the higher executives to spend a little time each day in meeting some of the faithful employes, no matter how humble their job or how dirty their person. Can not one imagine what it would mean for some obscure worker, from the indigo dye room, perchance, to be called from his work to see the treasurer, or manager, or even the head of the Personnel Department. He would come with fear, probably, wondering just how he had failed to do his work aright, expecting either a call down or possibly a discharge. (The very fact that he would probably have such a feeling is in itself an indictment of the whole labor policy of our plants.) But this man, entering the office with trembling, to be greeted with a friendly handshake and a few plain, sincere words of commendation, would go back to his work with a strange new feeling in his heart. It might take him days to analyze it, but the final reaction would certainly be an asset for the company.

Fellow Workers with Common Interests

The employes of any mill are individual units, not standardized machines. Although hundreds of them may have exactly the same work to do, yet each one is a thinking, feeling and willing being. Each has his own mental attitude and emotional makeup, determined by heredity, nationality, religion and training. He is not a machine and can not be treated as a machine. His reactions to his surroundings and to his treatment influence the quality and the quantity of his work. While mental and emotional friction cannot be measured as accurately as mechanical friction, yet it exists and the business of the modern Personnel Department is to discover the points of friction, analyze them, and apply the right kind of lubricants.

Becoming obsolete is the old idea that the relation of capital and labor is one of contract solely, in which a man sells his services at a certain wage and where if either employer or employe feel that the bargain is not a profitable one, he can void it without thought of its effect on the other. The new relation is that of fellow workers with common interests, and this gives new rights and duties to both. Because the management is intelligent and powerful it must take the initiative and prove by its acts to the workers that a new ideal has entered into industry. This does not necessarily mean that some novel scheme of industrial democracy shall be established simply because it is offered as the latest panacea for labor unrest, or even that an elaborate system of shop committees shall be put in operation, but it certainly does presuppose that the management has determined to deal fairly and justly with the workers, consulting them where it seems wise, seeing things from their point of view, and ever remembering that they are human beings. It is surprising how ignorant many managers and agents are of the mental and emotional reactions of the workers. They have never taken the time to study the employe's standard of a square deal. Unconsciously they do many things which irritate the workers or forbid things which the workers conceive to be only right and just.

Consideration for the Worker

One of our largest manufacturers, in whose plant there has never been a strike, asked recently for the secret of his success in dealing with labor, replied: "We have no trouble because we give the men what they want." This is not so quixotic and impractical as it sounds. Workers who are treated humanely, considered as human beings, not pushed here and there as though they were merely trucks and creels, will not ask unreasonable things; and if they ask them, when shown that they are not wise, will not continue to demand them. This human attitude will suggest from time to time many little changes which will be worth far more than they cost. The dinner pail, with its cold contents, for example, is disappearing from factory life. At the noon hour the groups of hurrying children at the gate carrying baskets or pails will soon be a relic of the past. If the dinner is brought in it will be properly warmed for the worker and an attractive place provided where he may eat it. To sit in some dirty corner of an oily smelling room and with dirty hands eat a cold lunch may be endurable, but it is not the proper care for the person of an employe. Better than any dinner pail at all is a well-furnished cafeteria, where warm, nourishing foods properly cooked can be eaten in happy comradeship. This is simply an illustration, ne out of many that might be given, of the way in which consideration for the worker as a human being will function.

Personal Contact an Industrial Necessity

The Personnel Department should be studying continually the thoughts, feelings and habits of the workers, tabulating them in some cryptic way, but having them at hand when some individual or group are to be dealt with. If contact with the employes in their homes can be made it will be especially valuable, not only in increased knowledge of their environment, but also in a more friendly and intimate relationship.

All these comments on employment problems in the textile industry indicate that if these problems are to be solved even partially a sane and constructive labor policy must be planned, an adequate personnel force must be employed and the head of the department must be a trusted officer in the management.

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WRITE FOR SAMPLE AND PRICE

ARMOUR AND COMPANY

Textile Soap Department

CHICAGO

Goodyear Three-Shift System

(*Continued from page 201*)

would be no other successful way for him to handle himself. It results also in rectifying faults before they become serious, and men are rarely reprimanded at Goodyear for this reason, and then only in the manner which any gentleman knows to be effective.

Studying Costs of Production

It becomes an easy matter for the overseers to study costs at this plant, where 95 per cent. of the operatives are on a piece work basis, with cost per pound in most of its elements a constant factor from day to day. But there remains the other 5 per cent. of operatives, like truckers, sweepers and irregular operatives, common to cotton mills, who are on a day basis. It is found that these constitute the only items which cause any need for progressive analysis. A day worker always has been and promises to remain a problem to the manufacturer. He is interested primarily in being at his time clock at ringing out time. But at Goodyear he finds it pays always to be there at the right time for ringing in. This saves a good deal of trouble with this sort of worker. But cost, as a whole, runs with almost unbroken regularity week in and week out as a result of the overwhelming preponderance of the fixed price per pound in the wage scale.

Stores System

A full appreciation of an up-to-date stores system is found at this plant, and its handling has been put upon a footing of the perpetual inventory of all parts, which are assigned a place and kept there, none being removed except by the "order on stores," which becomes part of the record or inventory of that article. This is found to be the most valuable kind of an aid in keeping costs of supplies down to a reasonable limit and in avoiding loss of production or worry from failure to have parts on hand whose exhaustion was not anticipated in time.

The Labor Turnover

The labor turnover at Goodyear shows some very interesting facts. Eighty per cent. of the operatives remain on their jobs from one year to another. Twenty per cent. are floaters, who, as is common with this class of workers, are replaced a sufficient number of times to bring the total labor turnover up to 84 per cent., under the present misleading method of stating labor turnover. These facts speak remarkably well for the whole system, and it is of interest also to note that efforts are being made still further to improve this showing.

The New Restaurant

The village has previously lacked satisfactory accommodations for its transients, whose coming and going in this, as in all other plants, is known to be a costly charge against operating efficiency. For this reason a very thorough effort is being made to provide the best that can be had for the floating operatives who have to eat at the lunch room or restaurant. An up-to-date equipment has been placed in a splendid new brick building. This lunch room is arranged with especial regard for the cheerfulness and neatness of the interior, and the fittings are in keeping with the substantial character of the building itself. Steel girders are painted a pale green, which harmonizes well with the white enamel paint of the walls and the finely applied complete sheathing which is used throughout.

The plant has a complete cooking outfit, with up-to-date ovens for making pastry, bread, etc.; a fine steam kettle for making soups, and complete refrigeration facilities for cooling and storage of foodstuffs. There is a dish-washing machine, together with large sanitary sinks. Smoke and odor conveyors are so placed, with ventilating fans, as to keep the refectory free from objectionable odors.

Social Life at Goodyear

We have shown the practical efforts which are being made a part of the everyday manufacturing procedures at the plant in order to develop that spirit of harmony and that degree of progress among men and women which is essential to good citizenship and contented social life. There is the other side of life outside of its industrial atmosphere which fittingly follows up the advantages which the latter has set down as a foundation.

People enjoy themselves immensely at Killingly, for the reason that they make a specialty there of organized fun, always specifically carried out with the idea of giving all a part. In organizing their committees, they are careful to include all nationalities whose members are known to be of a sort adapted to the work in hand, and to see to it that all participate. It is realized that a thorough mixing is essential previous to good melting, if the right blend is to be obtained for the future American people. Further, it is realized keenly that there is a tendency for people to segregate along racial lines, which would naturally defeat this blending, if this tendency were not fought to a standstill.

In this successful blending is also another good example of what can be accomplished in a village of this sort, and which is well nigh impossible in the larger cities. It naturally brings forth the suggestion that the salvation of America may be worked out in small industrial communities of this type when developed along similar lines.

Sports, Clubs, Etc.

There is no better mixing ground than the well organized activities of such things as bowling alleys, baseball grounds, boy scouts, camp fire girls, musical organization, and kindred efforts which thrive at Goodyear. The spirit of spontaneous enthusiasm which is shown there is no less interesting because encouraged, but rather more so for that reason. Yet it should be borne in mind that the underlying foundation for activities which maintain their spontaneity is that sort of solid prosperity which the industrial situation at Killingly gives to everyone connected with the place. With this foundation, all of their social activities are easily made self-supporting. Without this prosperity in any community anything but a half hearted Americanism does not thrive naturally, and at best is only artificial.

The Education System

Aside from the church, social, and industrial daily educational procedures, there is the evening school for overseers, which gives what few other communities can equal in intimate actual contact with practicalities on the one hand, and theoretical technical training on the other hand. A dividing line is drawn in the classification of men. In one group are considered all who are familiar, or desirous of becoming expert mill men, in the process of the mill preceding spooling. In the other group are those interested in processes coming after spinning, and including weaving. This evening school, when related as it is to the correlated efforts of the plant itself, can hardly fail to give an ideal opportunity for becoming broad-gauged cotton manufacturers to those fortunate enough to be associated with it.

It should be noted that there is a provision when changing shifts for the overseers to extend their oversight, or co-operation, one-half hour beyond the time limit of the shift, so as to enable an exchange of comment, or a tieup of procedures with the incoming boss. This feature has a tendency to promote a well-blended operational oversight which does not leave any ragged edges, such as shorthandedness and neglected work to be discovered with aggravating tardiness by the incoming executive. It, furthermore, serves to tie up well with the whole spirit of the personnel, both inside and outside of the plant, in building and maintaining good will, and makes for realization of their community of interests.

Future Growth of the Village

It is evident that with all that has been accomplished in turning a desert into an oasis of useful activity, the future holds the biggest chapter yet to be written about this live community. Most that has been done, even though the development has been earning its way by useful and profitable production, is clearly fundamental to the establishment of a large and thriving industry. During the period of prosperity which all agree is ahead of the United States, and at hand at this time, the nucleus of socializing science which has been demonstrated in this Connecticut valley is bound to have a far-reaching effect. It is one of the few which can show self-sustaining procedures, not one-sided, but truly communal in their character, without any of the impractical idealism on the one hand, nor offensive nepotism on the other.

Allen Woolen Mills, Rochester, N. Y.

SEVERAL new buildings have been under way during the past year at the Allen Woolen Mills, Rochester, N. Y., manufacturers of men's wear, suitings and overcoats. The principal addition is a weave shed with saw tooth roof, measuring about 185 x 130 feet, and built of brick on concrete foundation. The floors are of kyanized plank on a tar concrete base, and with a maple top. Sash and frame are of rolled steel. Window sills and trim are of granite composite. The saw tooth roof has hard pine beams and rafters carried on 18-inch steel "I" beams, and covered with a built-up roof of slag and asphalt. The saw-tooth section of the roof is constructed of 3-inch tongue and groove spruce on hard pine beams, the back being covered by Anchor brand roofing. Each saw tooth has three 16-inch galvanized iron ventilators.

New Office Building

The office building, measuring 84 x 48 feet, is of two stories with provision for a future third story. The third floor has been laid and is covered with a false roofing, consisting of ⅞-inch matched boards on 2-inch rafters, and a composition roofing material on top. This building, which is also of brick with concrete foundation and mill construction interior, is located on Elton St. and necessitated the removal of one or two frame houses. The first floor is made of kyanized plank on a tar concrete base, and fitted with a maple top. The other floors are of 5-inch hard pine, grooved and splined, but also fitted with maple top, laid diagonally. Columns are wood. The stair landings are of reinforced concrete, while both the treads and risers of the stairs are of metal, the actual wearing surface being of concrete.

A small soaphouse, measuring 34 x 11 feet, is also brick with concrete foundation, and mill construction roof. The floor has a granolithic finish. There is also a wooden garage, 25 x 40 feet, with floor of concrete and earth.

All except the garage are completely equipped with automatic sprinklers on the wet pipe system as fire protection. The weave shed and office are furnished with a low pressure steam heat system, provided from the present boiler room through a suitable reducing valve. The heating coils in the weave shed consist of 1¼-inch pipe hung 2 feet below the ceiling. Current for motors is furnished at 220 volts, 3 phase, 60 cycles. The light circuits are 110 volts, 3 wire mains and two wire branches. Charles T. Main, Boston, is the architect-engineer.

DOLPHIN HOSIERY CO.

New Mill With Dining Room and Other Conveniences

During the past year the Dolphin Hosiery Company, Toledo, Ohio, increased its capital stock from $50,000 to $75,000, and awarded contracts for a new mill building. Twenty-five new knitting machines are to be added to the equipment, bringing the total number of machines up to one hundred.

The new mill has three exposures, two on the street and one on an alley; it faces Shepard street with an 82½-foot frontage, Spielbush avenue, 128-foot frontage, and on the alley has a 131-foot frontage. It is built of pressed brick and gives maximum daylight, two-thirds of the exterior being steel sash and glass.

The first floor will be used for elaborate offices, and necessary toilet rooms, a sample room, a large stock room and a fireproof dyeing room. The second floor has a large work room, employes' dining room, dressing and locker room and women's rest room with toilets. The basement has a storage, boiler room and coal room. The building is heated by steam, using an 80-horsepower high pressure boiler for heating and power.

For the knitting machines, motors will be used with chain drives. The entire building will be lighted with flood lighting. The exterior is a tan pressed brick, and the building is of mill construction, two stories and basement. Edward Thal and Louis V. Bruyere, Toledo, are the architects.

Why Oakite Saves 25% to 50% Of Your Soap

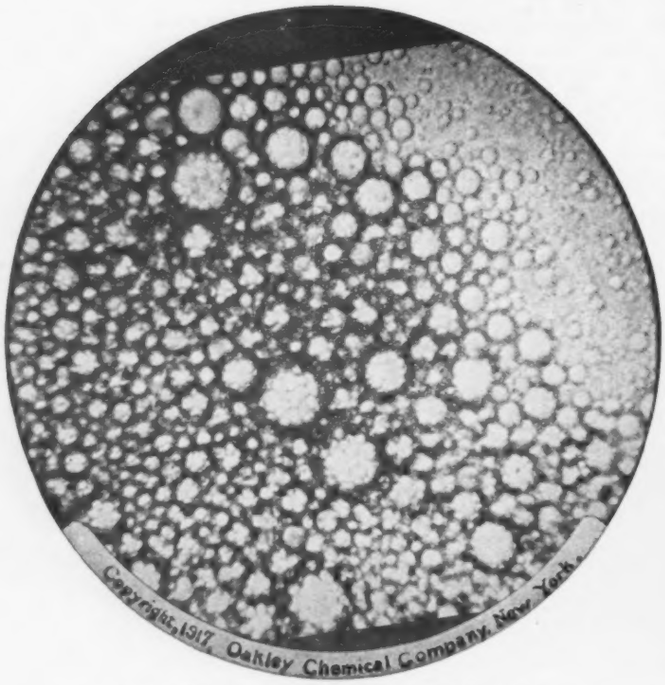

Fig. 1—Photomicrograph oil emulsified by Oakite. Magnified 1000 times

Oakite is a powerful detergent—it cleans. Oakite cleans by *emulsification* (see Fig. 1) —breaks up oils and greases which are the "binders" that hold dirt on fabric, and thus "pushes off" the dirt. This "lifting" action materially *helps the soap* do its work more easily and *less soap* is needed.

Emulsification is a *physical* action. Consequently the Oakite itself does not combine chemically with the oils or greases and is not "used up." The use of Oakite is harmless to fabrics.

Oakite softens water. This prevents formation of insoluble soaps which are not only a loss as a cleaning agent, but deter the cleaning action of soluble soaps and other detergents. (See Fig. 2.) Oakite thus prevents soap stains.

Oakite is a very free rinse.

Fig. 2.—Photomicrograph—insoluble soap formed by caustic, grease and hard water. Magnified 1000 times.

Practical results in many mills are the best evidence of the truth of these facts.

Woolen Underwear Concern—saves over $2,000 *a year by using Oakite and eliminating alkali. Use* 50% *less soap for scouring.*

Yarn—soaping out. Rhode Island mill saves 3 *to* 5 *barrels soap a month by building their soap stock with Oakite, for soaping high grade yarns.*

Raw Wool—scouring. Massachusetts mill uses 25% *less soap stock with Oakite.*

Webbing Mills, Rhode Island, formerly used barrel soap a week for soaping out. Now uses barrel a month with Oakite.

Write for Booklet 872-R

OAKITE MANUFACTURED BY
OAKLEY CHEMICAL CO.
42 THAMES STREET NEW YORK

Selling Necessities at Cost to Workers

(*Continued from page* 204)

The main advantage is that it saves the employes money, increases the purchasing power of what they receive, and so is equivalent to an increase in wages. Employes of the Illinois Central Railroad in the vicinity of New Orleans report that the reduction in living expenses has been from 20 to 25 per cent. since co-operative stores were established. The co-operative store of the Packard Motor Company considers that its net prices are at least 10 per cent. below even the prices of the chain stores. At the Stark Mills in New Hampshire prices are reported to be far below the local retail prices, 62 cents for fresh eggs as opposed to a market price of $1.10, soap at 5 cents a bar instead of 10, sausage meat at 32 cents a pound where outside prices range from 42 to 48 cents. It is probably true that these stores can save employes from 10 to 20 per cent. over current market prices. This is apt to make the worker more contented on his job, especially as it is a sound psychological fact that the average man appreciates something which comes to him as an extra, as a perquisite of his job, more than the same amount paid to him in wages.

The convenience is another advantage. His purchases are ready when he starts for home. There is no going out of his way to call at some store and no delay while other customers are being waited on or while his own purchases are being wrapped. These stores are especially valuable where mills are located in small towns several miles from large centers, because traveling expense is saved by the worker and his family. The Mt. Hope Finishing Company of Massachusetts, which is located in a small community, emphasizes this advantage and mentions not only the cost of carfare, but also the added wear and tear on clothing and shoes and the unnecessary expenditure of energy in traveling.

It is also true that if such stores are well managed and popular they aid in fostering a plant spirit. The employes feel that it is *their* store and it visualizes to them the benefits of the industry for which they work.

Arguments Against These Stores

Naturally these stores have been opposed by the retailers in the communities where they have been established. They have declared that the manufacturer is entering a field foreign to his own when he undertakes a retail business and that he is not likely to make a permanent success of it. But the fact that almost any man seems able to open a small grocery store and at least make a living seems to answer effectively this argument. But another argument often advanced is that there is no necessity for such a store if real competitive conditions exist in the town or city. The assumption is that if there is active competition between merchants, then prices will be as low as reasonably can be expected. But it is this very competition, in the grocery trade especially, which necessitates high profits on the part of retailers. Their distributing methods are costly, and each little local grocery store has to earn at least enough to assure the proprietor and his family a living. The chain store aids in keeping prices down, but their stock is usually limited and their location not always convenient. Meats, fish and many of the best grocery products are not carried by them.

A large central market doing its distributing efficiently and buying economically is the best hope of the consumer, and there are some communities in which the manufacturers, not wishing to establish stores at their own plants, are considering the advisability of financing such a central market in charge of an experienced man.

Retailers when confronted with the company store are very ready to point out that the manufacturers are equally guilty in profiteering, thereby boosting the cost of living. This in many instances may be true. Many manufacturers have made large and doubtless excessive profits during the last year or two. But because they have been guilty is certainly no reason why if they can do so they should not aid their own employes in reducing the cost of living. It may not be consistent but it is effective.

In the smaller cities the opening of company stores tends to eliminate a highly specialized service. Grocery stores deliver goods when a customer wants them, even a yeast cake or a loaf of bread; they take orders over the phone; they grant credit; they carry the employe over any time of financial stress caused by lack of work or sickness. All this service takes money. The natural tendency is for families to purchase at the company store when it is to their advantage to do so, and to call on the other grocery stores which offer this special service when they want that service. Such a policy if carried far enough will break down the ability of the outside stores to offer such service, or will compel them to refuse it to those who are known to be trading at company stores. Probably the situation is not yet acute in many communities, but with the increase of the company stores this will become a factor which must be considered. Even though the company stores might decide to provide for their employes the specialized forms of merchandizing which the public demands, yet if an employe left the company he might find it difficult to get the service which he desired from private enterprises deprived of their life blood by the invasion of the company store.

The Company Store and Distribution

It remains to ask if the company store affords any solution of the problem of distribution. It is without doubt a help to any group of workers, as it enables them to escape some of the expenses of ordinary retailing. Whatever expenses are borne by the company becomes an overhead charge on the industry and is passed on to the general public. If the company store teaches the average man that every service he receives must be paid for, and develops in him and his family a willingness to carry a market basket and buy for cash, its work will not be in vain. The company store does not require advertising and thus this expense is eliminated. (This does not endear it to the local newspapers.)

There is the possibility also that the company store may tend to eliminate some of the jobbing cost. With the wide purchasing power of a large industry many goods can be bought direct from the producers in large lots. It is likely also that if this movement continues to grow reciprocal arrangements may be entered into between various factories by which their products are sold to one another for reselling to employes only. This will eliminate largely selling and advertising cost, and would be a real advantage to those who profited by it.

But the company store or the co-operative store as at present developed are only localized and very limited attacks on the costs of distribution. While particular groups of individuals may benefit, these stores apparently offer no widely applicable solution of the distribution problem.

A Plan to Reduce Employes' Cost of Living

(*Continued from page* 205)

the retailer who is his own wholesaler enjoys an advantage over the one who is not, of at least five per cent. on the retail price of the goods. The reason for this is that the ordinary wholesaler incurs nearly half of his total expenses for things which would be unnecessary with a wholesale store whose owner was his own sole customer. Thus all expense of soliciting orders, giving credit and the like, would be cut out as would also the net profits of the jobber since the dealer might be satisfied with his net retail profit.

The aim would be to adopt thoroughly economical methods for taking care of a steady, dependable demand. This would mean being freed from many outgoes incidental to the uncertainty and war of competitive trade. And yet the consumer would have the advantage of real free competition on a scale and under conditions to bring about the best results. Who would be in a position to bid for such franchises? Certain jobbers who are not afraid of their customers, chain stores large enough to get bottom jobbing prices, larger New England "public markets" and a certain type of large retailers.

Advantages

The most important merit of this plan is the ability it gives to purchase family supplies in such large quantities that the employe would be on the same footing as is the employer himself in making his purchases. The fact that goods coming in bulk must be broken up into family quantities should not be permitted to subject the consumer to all the waste and inefficiency of the present distributive practice. Another point of almost equal importance is the fact that the operation of the plan would be in the hands of thoroughly competent and responsible merchandisers with first-class buying ability, good credit and valuable connections; also, the experience to make possible the most economical handling. In short, the handling would be secured in quantity, of those best prepared to do the work, as are the goods themselves.

Not the least of the advantages of this plan is that the employer would be wholly relieved of the responsibility of conducting a business of annoying details and largely freed from possible suspicion of having any concealed profit or ulterior incentive. This plan would give employes their supplies at exactly what they cost the wholesaler in primary markets, as near the producer as practicable, plus only the actual cost of transferring the goods from their source to the consumer. To be sure, there would be for the concessionnaire a net profit above his expenses, but this would be as low as open bidding would insure, which is an expense incident to any system whatever.

The employer frequently sets out to furnish goods to employes "at cost." But this means one of two things. If it means actual prices paid for the goods at wholesale, then the employer is making a present to the employe of anywhere from ten to twenty per cent. The common expense of groceries is 14 per cent. There are some disadvantages to this plan besides the cost of it. The saving would not be as noticeable to the employe as would a like amount added to his pay check. There is also a question as to the wisdom of selling goods at retail at wholesale prices. If, on the other hand, if what is meant is that the employe shall have the goods at wholesale prices plus the cost of doing business, it is doubtful how much the employe will get. If the company, from running what it calls a "warehouse," finally comes to running a store at the same expense the average dealer has to meet for doing business, there will be of net profit on groceries about 2.3 per cent. to give the employe, *i. e.*, 23 cents on each ten dollar purchase. This might be doubled on miscellaneous supplies, but even that would not be thrilling to the employe and would do very little towards keeping him loyal to the company store.

Reduces Labor Turnover

A large concern in Ohio has found that a satisfactory store, run largely by employes, has very materially reduced labor turnover. Probably this is due not alone to the ability of the employes to make a dollar go farther, but to the satisfaction of knowing they are getting good goods at low prices; and also, perhaps to the outlet for managing ability which the store affords to those employes who have not sufficient opportunity for expression in other directions. It would seem that a business audited and supervised jointly by employer and employe would afford good common ground upon which to cultivate acquaintance and so promote friendly feeling between employers and employes.

Perhaps this plan, through supervision, etc., would lead to wiser choice of what is bought, since, having once fixed gross profit, the dealer would have no incentive to give biased advice. Moreover, the influence of consumers with the dealer would be freed from the influence of the dealer's self interest. Among the things which might easily be brought about would be the substitution of bulk goods for such packaged trademarked, nationally advertised goods as were priced too high. Here should be a material saving to the consumer. Not all advertised goods are sold at prices which their merits do not justify, but many manufacturers exert the powerful influences of advertising to extort needlessly high wholesale and retail prices. A franchise dealer having once for all disposed of the profit question would be in a position to co-operate with consumers in this important matter. In fact, the mutuality of interest between consumer and dealer, after the one decisive factor of profit has been disposed of, would be likely to lead to many of the advantages to consumers aside from price, which characterize Rochdale co-operation in Europe.

Suggestions

All complications should be removed as far as possible to eliminate expensive details and secure the lowest possible bid.

Auditing would need to be done with great care in one respect, namely, that of justifying the prices paid for goods by the franchise dealer. In some cases, a dealer should consult an auditing supervisor when goods were bought. Current quotations at date of purchase would be largely relied upon to check up bill prices.

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Contract should stipulate in detail manner of audit and conditions of closing out in case contract was not renewed by present incumbent, *i. e.*, should goods be sold to successor at disinterested appraisal or moved.

The services to be performed by the bidder would include those rendered by the wholesaler and the "cash and carry" retailer. If credit or delivery were given, these should be at separate charge, except that orders on mill to be deducted at pay day would be treated as cash.

It would be well for consumers to exercise a limited supervision over quality and brands of goods sold and, through its committee, O. K. certain unstandardized goods like potatoes and dairy products.

A dealer who had such a concession would be freed from the necessity of doing many expensive things which are usually done, not to serve customers, but to attract them.

New methods like self service might well be introduced by such dealers to further reduce the cost of operation. An industrial company which should bring about really efficient distribution would richly earn great credit for itself. Surely the advantages to employes to be gained by bringing about really efficient distribution are so great that those who grasp the situation are not likely to rest until every promising plan has had full consideration.

Considers Mill Store Ineffective

(*Continued from page* 206)

just like group insurance, bonuses, and all welfare work. He believes however, that it is the least effective of all these methods. His experience taught him that the saving is too small to make an impression on the employes and furthermore, that the latter are too lazy to carry their goods home. In addition he states that it is impossible to obtain goods at sufficiently low prices in view of the fact, that many of the big firms will not sell their products to a mill, as they wish to protect their regular customers. He points to the fact that no small retail grocer is getting rich, as the margin of profit is too small.

His Experience

During its existence, this company's store averaged $1000 business a week. It was conducted on a strictly cash basis. He found throughout the list of commodities that it was hard to outbid the chain stores. He could sell any amount of candy, cigars, cigarettes and packaged cakes, no matter how expensive, but his workers apparently preferred to shop around for other things. As an example, he stated that probably half of the girl employes wear silk stockings and suede shoes, the latter costing $14.00 to $15.00. Even if he could sell the $14.00 shoe for $12.00 he states that they would prefer to go down to the main street Saturday night and have the fun of picking them out of the stocks of several stores.

He used to sell potatoes by the sack and deliver them, charging 10c for delivery. He found it impossible to maintain a regular delivery on all products as it was too expensive. He paid a man $30.00 a week to run the store. His loss in two years was very slight. Of course, as he explained, they had no desire to make money out of it, but only wanted it to serve as a method of attracting workers to the plant. His experience taught him that it was not nearly so efficient as the other methods.

Other Methods

This company runs a cafeteria and recreation room and considers this absolutely essential as its people come from all over the city. The management insists that the workers go out of the mill at noontime. They may go to either the cafeteria and recreation room or home. They also have group insurance ranging from $500 to $1000 on employes depending on length of employment; $2000 on foreman when employed; $3000 on office help.

Mr. Malcolm was at one time on a board in Paterson to consider co-operative buying for a large number of mills. He states that a great variety of plans were proposed at their meetings, many of which were hardly feasible. He admits that some plants are succeeding with the store plan. He does not want to say that his store failed but that it did not produce large enough results. His customers averaged probably 25% of the employes.

The chief point he emphasized is the fact that under present working conditions workers can get any wage increase they see fit to demand and that they take pleasure in spending their money extravagantly. In a situation of this sort he does not feel that it is possible to appeal to them on the basis of a few cents saving.

Will Probably Discontinue Store

Passaic Metal Ware Co. Not Enthusiastic Over Plan

THE Passaic Metal Ware Company, Passaic, N. J., has a small store in connection with its mill. I. W. England of that company was only too glad to show a representative of this paper through the shop. It is run as a sort of side line of a huge restaurant which seats approximately 400 workers. Mr. England was not enthusiastic about the store proposition. They do about $100 business a week at the most. They sell a considerable amount of candy and cigarettes in addition to a limited line of canned goods and a very good butter on which they save their employes 6 to 7c a pound.

Nevertheless, Mr. England feels his employes are not impressed with the proposition. He does not believe that they appreciate quality sufficiently and that they would prefer to purchase reworked butter from some cut price shop. In fact he finds that many of the cheap stores can undersell him on most commodities although giving inferior grades.

He is under the impression that the idea might be practical if a number of mills got together and bought in large quantities. The success of this scheme, however, in his opinion, depends on the caliber of the man they get to do the buying as he considers it a big job.

Leadership in Methods

The experience of this firm is interesting in view of the fact that it has been foremost in all modern methods of welfare work. Their restaurant is a remarkable one. Everything is sold at cost. The restaurant floor is a good dance floor and it is cleared at noon so that any of the 750 employes may dance if they so desire. In addition they have installed Mr. Leitch's plan of Industrial Democracy with great success. Nevertheless the store is not regarded favorably by the management and Mr. England stated that it is likely that they will cut down its scope instead of enlarging it.

Cooperation of Manufacturers to Solve Unrest

How Industrial Council in Passaic Has Broadened Its Scope

By *A Member of the Staff*

ONE of the most interesting examples of cooperation among manufacturers for the purpose of collectively solving industrial problems is the Industrial Council of Passaic Wool Manufacturers at Passaic, N. J. This is not a new organization but its scope is constantly broadening. Since the Council makes no attempts at publicity in regard to its work, a representative of TEXTILE WORLD made in investigation in that locality as to some of its accomplishments. He found that these were manifold and all of lasting value in promoting the industrial well-being in that section.

There are six individual companies in this Council comprising, however, seven plants as one of the firms has two mills. The members are: Forstmann & Huffmann Company, Passaic, N. J. (two plants, one at Passaic and one at Garfield); Botany Worsted Mills, Passaic, N. J.; Passaic Worsted Spinning Company, Passaic, N. J.; Gera Mills, Passaic, N. J.; Garfield Worsted Mills, Garfield, N. J.; New Jersey Worsted Spinning Company, Garfield, N. J.

Employment Bureau

Probably one of the greatest features of the work of this Council is the employment bureau maintained in Passaic. Every applicant for work in the woolen mills goes to this bureau. It is practically a clearing house for help. The qualifications of each man are noted by the chief clerk. Every day requisitions are sent in by the members of the Council describing the help needed. Bulletins are then posted outlining these requirements. The applicants look at the board and pick out the mills they wish to work in. The Bureau does not attempt to direct a man to a particular plant. This, however, is not the case where one particular worker applies. For example, if a chauffeur wants work and only one mill needs such a man he is immediately recommended to that plant.

This system has given very genuine satisfaction. Naturally the mills have not obtained all the help they need, as Passaic is not differently situated from the other industrial centers. There is especially a marked scarcity of female help. Nevertheless a sufficient number of employes have been obtained to start the night shift again. Approximately 14,000 people are now working for these six companies. There is a certain amount of idle machinery, but this is no longer sufficiently marked to be serious.

Another of the notable achievements of the Council is the stabilization of wages for the different occupations. Before this organization was formed the rate for the same occupation varied in the different mills. Now, however, the companies have got together and have drawn up a list of uniform wages for each different kind of help employed. The entire question was threshed out and a very formidable but most equitable list has been devised. It is significant that the U. S. Shipping Board adopted this same idea, eighteen months after the Council put it into force in its district.

The outstanding effect of this work was the stabilization of labor which resulted from the equalization of wages. In other words there is now no incentive for a man to shift from one place to another, unless of course he happens to move to a different part of the town.

Americanization Work

Americanization is no doubt a much abused word these days. Nevertheless, the sort of work which is being done by the Council along this line is decidedly sane in character. As an example the Garfield Worsted Mills have a class in English every night. The Gera Mills are understood to be planning such a scheme also. There is unlimited scope for this activity in Passaic, as it is probable that there are as many nationalities in that city as in Lawrence, Mass. Under existing conditions it is merely a question of transplanting a Pole from Poland to the Polish section of Passaic.

The Americanization work cannot be said to have really achieved a full start. It is known that this matter has been receiving special consideration by the Council and it is believed much greater efforts will be made in the future.

Mill Stores

Another phase of the Council's work has been along the lines of the mill store. At one time each mill handled certain commodities which it supplied to the entire group. For example, one plant would sell butter and flour; another would sell ham and bacon, and another canned goods. A certain member of this organization has a remarkable bakery. This mill supplied a 2-pound loaf of bread made of a mixture of flour for 15c. at a time when flour was very scarce.

It is understood, however, that the ex-

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CORRESPONDENCE SOLICITED

Cooperation of Manufacturers to Solve Unrest

(*Continued from page* 341)

perience in this line indicated that it was impossible to compete with chain stores on certain commodities. One of the difficulties is keeping the stocks of goods, as, for example, flour which is subject to deterioration in the summer time. It is believed that the Council realized the ideal way would be to establish a great big store. There is always, of course, the question of injustice which such a method would do to honest retailers, but this is offset by its possible results in checking the profiteer who boosts prices of commodities with every increase of wages granted in the locality.

Economic Training

Still another branch of endeavor has been the establishment of industrial training schools in the mill. A year ago the company started to train weavers. It was found that it was possible to make a weaver out of an entirely green hand in from 5 to 6 weeks. A case was heard of in Passaic where a woman started as a novice and beginning three weeks from her first instruction made no less than $30.00 a week thereafter. In most of the mills the policy has been to segregate the beginners until they shall have received sufficient instruction. In addition there have been lectures on the economic principles underlying production.

Recreation Plan

There has been started in Passaic among the mills who are members of the Council a Factory League which comprises bowling, basketball and baseball teams. Series of double-headers in basket ball were played early in the new year and this entire sport program has evidently been a great success.

A baseball league is planned for next spring. In addition it is hoped to have an Athletic Association. Plans are under way for a meet next fall in which workers from the various mills will compete. Another phase of the recreation work has been the formation of a mighty good orchestra in one of the plants.

Individual Achievements

Besides the work of the Council as a body there have of course been innumerable propositions launched by the individual mills. It is understood, however, that such things are seldom done without notice being given to the other members of the Council.

Among these internal affairs of the individual mills is the group insurance proposition which has been inaugurated in certain of the plants. The Botany Worsted Mills and the Garfield Worsted Mills have started this scheme and it is understood that another of the large mills in this group is making preparations to create a sick benefit fund and life insurance fund without cost to the employes.

Another plan being started independently is the erection of houses for the workers. Housing conditions in Passaic are as bad as they are in all industrial centers and it is the realization of this fact which has impelled the companies to branch out along this line. The buildings which are being erected are either individual or tenement houses. The plan is still, however, in an embryonic condition.

In the matter of industrial relations, one of the mills took the initiative and established workers' representation committees for the purpose of bringing complaints to the management through representatives who are found in each department.

Since the Council was organized the Gera Mills have built a fine restaurant where the workers get a good mid-day meal at very low price. Still another of the plants has a model cafeteria which has achieved a wide reputation.

Another individual achievement has been the engagement of visiting nurses. The Garfield Worsted Mills have put in a dispensary and the idea is to have a clinic for first aid and also to look after sick employes.

Certain of the mills have "attendance officers" who keep check of the absentees and endeavor to discover reasons for failure to appear at work.

One of the plants has offered its workers $200,000 worth of 8 per cent. preferred stock which is sold to them at such a low price that the net return is 10 per cent. per annum.

Enthusiastic Support

In regard to the attitude of the workers toward the Council it was felt that certain of the workers were antagonistic at the start. The results which have been accomplished, however, have been so noteworthy that even the most stupid of the employes cannot fail to see its value. Previous to its organization workers stood out in the rain in front of the gate house in the morning until the foreman came out and picked a number of them indiscriminately. Now-a-days they go to a comfortable office where they are received courteously and are informed as to prospects of employment.

It is known that many of the employes have testified to the value of the Council's work and that there is a feeling that they can now go to the Council office and get such consideration as was never forthcoming before. The conversion of radical agitators by means of the exceptional treatment offered them has without doubt been an invaluable step toward the neutralization of industrial unrest in that section.

Economic Education and Square Deal for Workers

(*Continued from page* 207)

that all advertising for new employes has as its keynote the 'Square Deal' policy.

"In my travels I have met with more or less criticism of welfare service. Usually this criticism emanates from employers who have tried some form of such service and failed. Many of them have experimented with group insurance, a housing project, some recreational activities, medical and dental dispensaries, or movements of a similar nature.

Bonus Plan an Endless Chain

"The employes must be taught that they cannot get something for nothing. That is one of the big reasons why the bonus system has proved impracticable. It does not accomplish its objective and is never lasting because the workers themselves have no true conception of why they are getting it and consequently do not understand. Sooner or later another bonus has to be paid and so on ad infinitum. It is an endless chain proposition without stability.

"Putting on an arbitrary bonus with a plan of employes' representation which may be fluctuated at will can never succeed. Its giving must be based on facts and figures and kept on that basis. Unless this is so it is not based on a true foundation, and the economic education of the employes will never be accomplished.

"In presenting the 'Square Deal' plan to workers in any given plant we necessarily show them, of course, how they will profit as individuals. We therefore establish standards from which to proceed. These we show the workers by means of charts and lectures. Our subjects are, of course, labor costs and 'burden.' We show them that they must save money at those points, through increased personal and collective efficiency.

"The plan does not touch upon the profits of the company in any aspect. We show the workers the figures of the several departments and explain to them that by saving waste wherever it occurs in time, idle machinery, supplies, broken tools and on all direct and indirect items, they can profit individually and as a body. Every element in the cost of production that could be affected by increased interest on the part of the workers is brought out and fully explained in its relation to the other elements. It is all entirely a matter of salvage, or reduction over past costs.

Forty Per Cent Efficient

"When one considers that the Government reported the average worker but 40 per cent. efficient, it can be seen that 60 per cent. of the actual man power in the United States available for useful purposes is wasted. In other words, in every working day of ten hours but four hours are actually devoted to productive purposes. This is an enormous waste and the workers are made to know that by increasing their efficiency they will naturally be reducing the high cost of living and be entitled to a 50-50 split on the savings resulting therefrom. Each department is set up separately and the net gain and net loss over current performance of an average standard is then figured.

"The result in increased earning possibilities through greater efficiency is then pooled over the entire plant and the distribution made individually on the payroll dollar, each worker receiving a pro rata earning over and above his basic wage. It can be seen that in this way is obtained in the first instance the individual incentive for personal gain, next the department incentive from a comparative source, and lastly the greatest benefit of all—the building of a community spirit by pooling the interests of the entire organization through co-operation and increased organization earnings.

Workers' Meetings Invaluable

"It will be a great temptation for many to attempt this participation idea without, what they may think, is the nuisance of the legislative bodies, so I wish to call attention to the fact that while increased earnings may interest these workers temporarily, they will never create that lasting interest in the organization that follows the open discussions of problems, hopes and pleasures by the workers in their meetings. These meetings open up the most wonderful propaganda possibilities ever dreamed of.

"It is a well known fact in psychology that the group interest supersedes the individual in equal ratio with the number in the group. It is this group interest—this morale of the mass, as it were, that won the war; that made our country the country it is; that is bringing about the expulsion of the Bolsheviks. It is the subjugation of the individual desire for the good of the whole. It is taking advantage of the constructive thought behind public opinion. It eliminates the lying agitator through his fear of ridicule. Selfishness is barred.

"I have been asked frequently how unionism regards the 'Square Deal Policy.' The best answer I can make is to cite an incident which occurred while installing the plan in a large plant in Massachusetts. Every worker in the mill was a union member. In discussing the plan with the company's president and before presenting it to the workers, the question arose as to the possible attitude of the union officials. We suggested that during the presentation of the plan to the workers, the union official in charge of the district be invited not only to be present, but to criticize the plan, either for or against it as he saw fit. That the plan was unanimously adopted is sufficient indication of the attitude he assumed. Incidentally, the results of the plan have been most satisfactory to all concerned, and the union official is still at his post.

Square Deal to Employer

"The manner in which the workers themselves adjust themselves to the policies of the 'Square Deal,' and legislate their affairs for both the benefit of themselves and the management, is indicated in an incident which occurred in another large plant in Massachusetts, where one of their first acts, after the plan had been adopted, was to decide to cut their working hours from a fifty-five to a forty-eight hour week. This did not seem to the majority of the workers themselves to fit exactly into the 'Square Deal,' as it meant a curtailment in production of nearly 13 per cent. and no reduction in pay, and they said so. It was finally arranged, however, by the workers themselves in legislative session, to try a 50-hour week and if it was found that the standard of production could be maintained under the shorter week plan, they would consider going to forty-eight; if not, they would return to the fifty-five hour schedule. This I consider to be the ultimate in the 'Square Deal' to the employer.

"They have not only maintained their production in the 50-hour week but have paid a dividend on increased product besides.

"The form any employes' representation plan should take has been subject to considerable controversy from many sources. Personally, through actual experience and observation, I have come to the conclusion that the plan, like an automobile, must be suited to the individual need, and not the needs to it. We must study and know our needs in advance of the formation of any plan. A survey should be made, cost standards should be set up and a definite organization decided upon in advance of any intimation reaching the workers of what is in contemplation.

Plans Not Flexible Enough

"It has been brought strongly to my notice, and I do not say this critically, that many manufacturers have attempted to adopt systems of their own and have found after their adoption that they were met with sullen suspicion or fell far short of what had been expected because of a lack of ability to present their ideas unbiasedly. In other cases the plans have not been sufficiently flexible to accomplish the desired end without waste, entirely due to lack of proper functioning. Others have put on plans and have provided no incentive.

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Favorable Sellers' Year in Men's Wear

Complete Change from a Low-Priced to a High-Priced Market

ALTHOUGH getting off to a discouraging start, the year in men's wear turned after a time to the advantage of the seller in its more important phases and maintained this character to its close. When the year opened the trade was in the thick of a period of cancellations of merchandise that stood ordered on the books. Practically a clean sweep was made by the clothier in preparation for the grand, new order of business that everybody expected would come with a rush after the closing of hostilities. After more than a full year of it, the new order turned out to have so many uncertain and unsatisfactory features, that many found themselves wishing that prosperity might be attended with less aggravations.

Looking back at the first few months of the year from this distance, the change in situation is complete. In January and February sellers were scratching around in the cellar hunting the lowest possible mark they could find to place on a line of heavyweights in the belief that an extreme price attraction was the only possible panacea to doctor up an exceedingly sick business. It was no easy thing to find a low price, because wool was under complete Government control, and labor was uneasy. A leading seller finally arrived at a level, and the selling campaigns opened up with much struggle and many doubts. Sellers in a few cheaper lines who had forged out ahead of the American's opening, in mackinaws, for instance, found the big factors cutting below the January price ideas and were compelled to revise them downward to meet the lower standards. The rush that was made for goods was a surprise to everybody. The big company was swamped with orders and within ten days began closing up lines, and before very long began cutting down the orders placed.

Independents Disregard Lead

Independent sellers stood off and acted variously. Certain ones met the levels announced, and certain others never met them or even tried to meet them. Strong buying showed up everywhere, however, and by April the buyer was coming hat in hand. It was not all a matter of pure values. Indeed hardly at any time has pure value cut much of a figure throughout the year. There were too many other remarkable things going on affecting prices and merchandise. In January, and continuing throughout the first few months of actual selling, an avalanche of unrest that proved to be the main characteristic of the year in all branches of the textile industry, set in and soon began to have telling effect. The demand for a shorter working week became acute late in January and from January 24 to June 2 there were constant curtailments in the sections where 95 per cent. of the woolens are made.

With the outstanding features thus briefly summarized, it is readily seen that, analytically considered, the men's wear business established a distinct groove of its own and ran on its own form throughout the year, independent of associated lines and quite distinctly different from commodities of other lines of trade and industry. Further considered, it even shows distinct phases within itself, and when some of the more prominent ones are considered it will be the more readily appreciated why the seasons of 1919 made more history in textile annals connected with men's wear fabrics than in many preceding years.

Innovations Adopted

In the business many innovations were of necessity adopted, and most outstanding of these, perhaps, was the decision made in the spring by first hand sellers generally to parcel out merchandise by allotment. Different forms were practised by different concerns, or at any rate differing methods were used to arrive at the rate of distribution, the basic plan being, however, in practically every instance, to assign a specific yardage to customers pro rata to their needs in previous year or years.

In a year of overwhelming demand for merchandise of all sorts, the situation speedily resolved itself into a factitious shortage, in which only cool-headed management could meet the difficulties cropping up at every turn. In addition to the difficulties of making a price, it speedily became hard to maintain a price once made, as the pressure of the clothier to obtain goods tended to place a premium on them, and, on the other side of the shield, rising raw material and labor costs sent actual cloth costs upward. A mean figure on the rise was found so difficult of approximation at various times in the year, that reliable figures could scarcely be attempted at this time. Outside costs were estimated by accountants as closely as possible and in some instances an arbitrary allowance made to cover six months' contingencies.

The rising tide bowled over even such expediencies and on the word of numerous reputable informants, such limits were surpassed with much frequency. Upon the admission by sellers that contingency plans were unreliable the only recourse left was to confine orders as far as possible to nearby months, and so far outside of all anticipatory plans did the market escape, that there are instances of even this highly conservative course failing of satisfactory results. For instance, when November arrived, a very large factor found that developments of the year had in the meantime expanded a carefully estimated six months' production, by reason of lost time and reduction of output per unit of production, so that it represented at least eight months and probably ten months of uninterrupted work. And, at the same time, at least one large clothier was heard of, to whom there was being delivered wool suitings on a contract that was made for the fall season of 1918 by another concern in the next block.

Worsted Boom Soon Frosted

One of the distinct phases that marked the first post-war year relates to fancy worsteds and serges. Little was it imagined that their course for a twelve-month could be so erratic and chaotic. There was a distinct early movement, when all attempts at giving a start and direction to cloth manufacture and cutting were hanging fire, to elevate fabrics of the worsted division to a place of unheard of distinction and advantage. Their wearing qualities and great intrinsic value appealed so strongly to the deep-laid plan, to clothe the men of this country in more wondrous habiliments than they had ever known before, that certain tailoring houses announced intentions to make their lines worsteds and nothing else. At this writing there is apparently little left of the movement. Worsteds and serges appreciated rapidly under the tremendous demand that came upon a sadly-hampered manufacturing year. The lack of stable prices helped to side-track their early boom and long before the end of the year factors were more concerned about the lack of yardage than the other matter of a price consideration. Indeterminate prices helped also to obscure the real worth and effect of this movement, and it may be a very long time before its actual influence may be rightly estimated.

Wide Differences in Price Ideas

Even from the outside viewpoint, guessing at prices proved mostly wrong. For instance, many buyers had a higher price idea than the early openings brought forth. American 3192 was as much as 20 cents below a number of estimates that the estimators themselves thought were low, when it was marked out at the opening at $2.62½. Other 14 oz. serges were not long in selling at par or better. Independents were in clover when a speedy selling up of the major offering put them in clear possession of their own price ideas, and it is safely estimated that they were better off by 50 cents or $1 a yard before many more weeks had rolled around.

For all that, the worsted division, in the light of subsequent events, is considered to have been sadly below the mark all around and a great deal had to be written off for mistakes of the first six months of the year. One selling agent said a few days ago that it has been little realized how much devolved upon the spinners in 1919. This remark certainly carries the kernel of the matter when, to get a wider perspective, a consideration of it is approached from a background of several years. In a less polite way it might have been said that the market was too prone not to look beyond the end of its nose. Before the war 2-40s half-blood worsted yarn, good grade, was selling at 92½ cents a pound. A great amount of the business of 1919, it is asserted by reliable authority, revolved around 2-40s half-blood worsted yarns, good grade, at about $2.50 a pound at least, and for those who waited too long in the immediate uncertain period after the armistice, around $3.50 a pound. This was by no means all. One yarn agent never went to the trouble along the middle of the year to remember fractional quotations—this simple formula sufficing: "40s—drop the naught and the s—$4." With prices so varying, and ever mounting, in worsted yarns, the same thing is the answer in worsteds and serges. Intertrading, following allotment arrangements, further obscures values and since quotations were withdrawn for months, it is at once apparent that the price record for the year is bound to be incomplete.

Dollar Leaps on Yarns

Only a few days ago a worsted yarn agent, discussing the bulk price on yarns for men's wear serges, estimated that the bulk business was so placed that a mean of $2.75 a yard might represent the average price on 1919 productions, and, furthermore, that a similar mean price on 2-40s that will be used in the fall 1920 productions would probably be around $3.75. "Going up a dollar a year," said he, "and so they will logically be $4.75 by the time another year rolls around, unless something bursts." Recent information has indicated that probably the bulk business for this season has been placed around $3.85, with late coverings in a tight market above $4 and up to $4.25.

On the steadily rising tide, therefore, which has thus again shown its continuance to the very end of the year, the year 1919 in men's wear marked a progression to a new post-war level in prices from material and labor necessities.

Lightweight Season Crimped

With the impetus given to the first heavyweight business attempted after the war, the last half of the year gave an increasing emphasis to the trials developed in the first half. They brought to light new phases in merchandising, somewhat suspected before the war closed, but not half-guessed in any particular. From the seller's point of view it certainly was a distinct trial to be cutting down surplus orders in April when a fair organization, as one seller indicated, could easily sell 20,000 pieces in 48 hours. And this, it is to be remembered, was at a time when mills were still laboring under the erroneous impression that stimulative selling methods were necessary to make a successful season, instead of the repressive methods that asserted themselves before spring 1920 sales had to be faced. On account of overselling from the start, at least two outstanding phases had to be dealt with. There were enough heavyweight orders to run machinery months beyond ordinary seasonal times, and so the market lost its seasonal aspect entirely. The problem of spring 1920 lines was how to insert a production where there was little or no room for it. This unusual situation produced a compromise. Spring 1920 lines were made very small by most mills and practically ignored in certain instances. It would not do to say that spring men's wear was neglected. In the endeavor to meet the unusual situation, besides restricting sample lines to a few numbers, medium-weight styles were carried through and made to do service for the clothier and the clothes wearer for all-the-year-round wear. A continuous run on middle-weights aided considerably in meeting the enormous post-war demand and also contributed largely to making the formal openings of spring goods and the naming of prices on specific dates less general than for a number of years. In addition to the restriction of lines and to the difficulties imposed of making deliveries on heavyweights that ran over into the lightweight season, the making of contracts for bulk merchandise with operators explains, in certain instances, why there was no regular showing on the part of specific lines.

Silk Thread Shortage

Not a little confusion was injected into the lightweight season, also, by the necessity to revamp lines. In this connection the withdrawal from the market of large makers of decorative silks was a very material factor. Wool goods of

the cassimere order and the whole category of silk stripe effects suffered on this account. Every known cost-of-production factor seemed to work for high prices on spring goods, whether the basis was in labor, materials or the general extravagance of the period. As for the outside influences which poured their effects in a general deluge on the industry toward the end of the year, these generalities are too recent and well known to have their effects estimated within the purview of 1919. They will be brought over into the story of the current year and at this writing they at least insure dear prices for the ensuing twelvemonth whatever may happen toward the amelioration of conditions a little later on. In the lightweight season the allocation of goods was resorted to from its inception. Little preliminary business for fall 1920 was attempted in the closing months of the year in any formal way, although where it was possible to estimate a price, seller and buyer speedily came to informal and binding understandings on the allocation of staple goods.

Mutual Adjustment Bureau

One of the most important forward steps in the last twelvemonth is the establishment of the Mutual Adjustment Bureau by the operations of which the selling agent and the buyer is assured of fewer cancellations and the settlement of disputes over quality of merchandise. Because it was established in a time when the buyer was inclined to accept his merchandise with a minimum of questioning, actual operations start rather haltingly. Cases of examining and adjudicating increased toward the latter end of the year and a career of exceeding usefulness undoubtedly awaits this service. The service department puts merchandise into mill shape and overcomes, therefore, the necessity of sending "returned goods" back to the mill, there to be dealt with and ultimately reshipped to New York. If necessary, goods are reclassified as A, B or C seconds, thus affording a basis on which resale is permissible. Eventually the cases that are being decided, now, every little while, should aid in establishing standards which the industry has decidedly lacked. Selling agents who are using the service are already speaking of its efficiency and economy with enthusiasm. They figure that the bureau will go a long way toward closing the door against repetition of the unpleasant experiences of ante-bellum seasons, where a change in the direction of the market or simple inability to cut up pieces that were ordered would induce many a cancellation that could be avoided.

A Rage in Irridescents

From the fact that it was altogether a year for staples in suitings and overcoatings, owing to the remarkable drawbacks that obtained in the general production of wool textiles as time proceeded, there is very little to be said for woolen and worsted novelties. One novelty made quite a course for itself, however, in irridescent weaves, which had a wave of popular favor early in the year. The cloth makes use of the elusive color effects that are best known in changeable silks and some of the contrasting shades in greens, blues, reds and purples in 11 and 12 oz. worsteds went very well indeed. The fine worsted quality, in 2-ply yarns, was cut up extensively in topcoats. For a time these showy fabrics were quite a rage in the market, and they may come again more extensively when conditions are more favorable to novelties. As it was, selling agents soon were compelled to drop their lines and many of them were very much of a sub rosa affair.

Effects of Idling

Five months of sporadic idling in the first half of the year, and cutting time at the mills ten hours a week made a terrific shortage in the piece goods situation throughout the year. This circumstance made it impossible for the mills to sell any additional merchandise for the fall season, because they sold an amount of complaint that, in retrospect, initially to large and small purchaser on graded allotments as cheaply and consistently as conditions would permit, and made the most of those deliveries with spect, seems astonishingly small. Many mills simply refused to take on additional fall 1919 business at any price on account of labor and market conditions. The great regret of it all is that needs repressed during the war could not well brook further suppression; consequently an extremely bullish market was inevitable without supplying the satisfaction that obtains usually in such trading.

High Retail Prices

One of the consequences was that the retail situation is claiming more attention to itself than it is usually able to command from first hands. Similar conditions, industrially and in merchandising obtained in apparel manufacturing, hence, some interesting conclusions may be worked out from figures made public in December.

Fine Demand Slackened Output

In addition to the arbitrary losses of hours and production imposed on the industry by the adoption of the shorter day, an extremely critical character of demand imposed others of importance that tend to explain certain disappointments in not attaining a maximum in bulk results. For instance, an inordinate insistence on fine goods was bound to slacken output, and the trade showed little disposition to co-operate in the obvious remedy of spreading and stimulating the desire for coarser weaves. Speaking of this feature, and the extreme watchfulness exercised by mill leaders through many critical days, a manufacturer, as the year drew to a close, said:

"This is a seller's year, of course, and it was made a seller's market largely by the demand forcing high grade goods to be manufactured, with raw material scarce and many other difficulties to contend with, as is well known. Few, probably, give sufficient force and credit to the fact that with goods of high pickage the labor cost is more than with goods of low pickage, and to the slow output of fine goods compared to others of coarser and faster weaving characteristics.

What Kept Them Busy

"Every strike has affected the manufacturer and his outlook—steel, coal, dockmen, what not. I don't believe sentiment has yet crystallized in this country, but I believe it will soon. Manufacturers are too busy just now with immediate problems. They would like to read; but they cannot take time to read."

As the year closed, opinion was far from certain as to this year's outlook. It is, of course, natural to expect, that conditions will improve steadily the further the war recedes in the background, and a prosperous year is hoped for, although it may be necessary to grope through many problems having a strong resemblance to those of 1919.

Unprecedented Year in Dress Goods

Standardized Colors and Rising Sport Demand Furnish Bright Spots

THE lack of precedents is probably the main feature of the complex year in dress goods that has just come to a close. Manufacturers had little or no guide to the developments that have been many in the last twelvemonth and no means in their power, based on actual previous experience, to shape developments in a successful and profitable groove. At this writing the situation is vastly complex, and, it is to be feared, growing more so. To look back over the year is simply to discern how easy it is to make mistakes, how readily a really commendable conservatism may be misunderstood and how great a task of reconstruction of the business fabric the closing of the war imposes on the business generation, either surviving or starting out anew.

Buyers and sellers floundered at the opening of the year in a period that for a long time was governed largely by distrust of the future. The difficulty that seemed to confront sellers at the outset was to get their prices low enough to insure the operation of machinery that was rapidly bared of work through cancellations of orders by the Government and by the cloak and suit trade. The general assumption was that the market, having been burdened with greatly increased prices on account of war conditions solely, would practically at once return to a normal that would represent either their former levels or a close approximation of them.

Deadlock on Guaranteed Prices

This was an error in which nearly all market factors shared equally. The error persisted long enough, however, to create instability in the trade, brought about a deadlock between the manufacturer and buyer, and entailed a considerable period of idleness for a large percentage of looms. During this period of stagnation and hesitancy efforts were made by buyers of all classes to obtain contracts for goods at prices guaranteed against declines. It is significant of the lack of confidence of the sellers that they did not fall in with this proposition to any great extent, and the failure to do so stands now, largely, as a tactical mistake to those who look only at the top levels attained in the market. On the other hand, the tenacity of that early resistance and the resistance itself must be credited to a certain extent as a contributing cause to the ultimate course of purchasing. Buyers share an equal responsibility, as far as there is any responsibility, for they were not ready at that time to purchase, being somewhat steeped in the fallacy that prices would rapidly decrease. The observations of manufacturers were to the effect that a tremendous demand must exist, and this submerged need speedily made itself manifest. And right here is where complications of the unforeseen sort began to make themselves felt. The slowness of the Government in turning over wool, its quasi-determination to reclaim an equivalent, practically dollar for dollar, that had been put into the material at generous allowances, based on the emergency needs of war, the consequent appreciation placed on new domestic clips, and the shortening of hours in the mills by organized labor demands, contributed most of the complications for which the year 1919 will long be notable.

Unwinding the Complications

Very little of a forward stride was exhibited in dress goods during February. Dress goods looms were in far better shape than others to be diverted from war orders to civilian goods, and yet delays occurred so that, by the time the repressive effects of strikes and shorter hours cut down productions generally, this slight advantage was reduced to a minimum, and the dress goods factors have been unable to show any superior progress toward normality as the year closes.

Peculiarities in merchandising that asserted themselves early, by making it a practical impossibility to separate demand into seasonal channels, bordered closely on confusion all through the first two quarters of the year. Cutters were delayed by the necessity of settling to shorter hours before Easter and they were clamoring for Easter 1919 supplies when only a small amount of machinery had been brought around to the producing point. Sellers recently have commented upon the bare condition of shelves at that time as a benefit, after all, for the buying movement that ultimately set in cleared everything out of stock and all that has been sold since has been assured of prompt consumption. In certain quarters of the market it was then felt to be just as well to concentrate efforts chiefly upon immediate production of heavyweights. Sellers have been disposed throughout the year to be reticent in regard to prices, and buyers also have been much inclined to keep their bargains to themselves.

Bulk demand, however, was not long in making itself heavily felt. The lack of general openings, and the general timidity that accompanied such as there were, speedily worked buyers into a bidding frenzy that had not evaporated when 1920 came in. In almost no time at all serges were commanding a premium in Amoskeag, Andrews, American and Whitman numbers and this was just a signal for a speedy sweep of the field, so that before long the sign of "No goods to sell" went up from one end of the market to the other. It is, of course, patent that operations went on steadily throughout the year, and that, all things considered, a notable production was attained, of which the major part went rapidly and generally into domestic consumption.

Overloading with Trimmings

The influence of narrow and abbreviated styles remained from the period of war conservations, and this seemed to give the suit and dress manufacturer extreme worriment. It was early understood that scant materials made plain and simple garments a foregone conclusion, yet the garment manufacturer deliberately contributed to the extravagance of the period by determining on elaborate fur and bead trimmings as a bait to make up for the lack of basic materials. It might not have been so bad had it been only woolen goods that were going through a year of underproduction, but the same thing was happening elsewhere, in all textiles, as a matter of fact, and the general

cleaning out in 1919 of silk and cotton dress stuffs, as well as wool, may not be duplicated again in a great many years.

The indefensible combinations of dress materials with glass beads, cheap nutrias and cheap furs, in the past year, will probably not be forgotten in many a long day. Nothing but dire necessity could have induced the purchase of a coat that promised warmth when the shopper in order to obtain a coat put down only the sum with which she had intended to purchase a suit and a coat, and with it an additional sum borrowed from her shopping companion. In instances the garment carried better linings than usual and more fur trimmings; in instances they did not, and lacked both weight and fastness of color. Hence, the garment trade, being agreeably surprised at the comparative ease with which they have been able to market garments on a higher price basis than they ever before experienced, combed the first hand market zealously for months, and sometimes paid more for seconds than the regular ticket on firsts, in order to secure the maximum of benefit before the balloon burst.

Softness, Fineness, Artificiality

One feature of material influence that is not to be overlooked is the favor developed for fine goods of all sorts in coats and suits, as a human expression, in outer apparel, of the relief from the horrors of war. Demand for dresses and separate suits, as well as coats, was particularly large during the year and it is an undoubted fact that selling agents, and the garment trade, would have been seriously beset to meet the situation even had the year been entirely free of the retarding factors that developed copiously, expanded furiously and hung on tenaciously. The satisfaction that exists with the liberal returns won on the efforts of the period is largely artificial, just as the whole merchandising adventure has been so palpably artificial.

Colors and Dyes

It is probable that in no recent year has the color factor been so closely related to the dictates of style in the garment market in manufactures for women's trade. Notably, high colors have been brought out, received a cordial welcome and are accepted with a surprising confidence. To a certain extent this year has been unusual in its demands, but in this particular phase the influence of more large indoor functions, as well as the rugged call to the outdoor life, has been responsible for a vogue of knitted and corded wool fabrics, mostly in solid colors. Naturally colors are a most important element in the manufacture of wool serges and there were, apparently, up until the war, few attempts at variations from less than half a dozen solid shades. During the war period there was endless trouble over dyes of the shades most in favor, and the worst of it was never fairly appreciated because of the low prevailing demand in that period. Luckily the various sport shades have been comparatively easy to produce with the increased and now well-established supply of domestic dyes.

Standard Color Card

It has been a matter of considerable gratification, therefore, that special woolen shades developed on the American card during the year have proven of especial advantage to dress goods manufacturers. Planned and introduced to utilize the range of dyes made in this country, the success of the first woolen shade card of twelve American colors—dune, sponge, canton, musketeer, bison, date, crane, dove, quail, canyon, blue grass and teal duck—is especially gratifying. The progress made with the standard woolen colors is not detracted from in the slightest by the subsequent muddle over high color fast dyes that are only wanted at special times and for special uses. But when they are needed, the dress goods manufacturer wishes to be free to act quickly and get them, even by importation if in no other way.

Business for the Future

As the year was drawing to a close, it was evident that buyers had a large need of goods. The demand for merchandise remained almost as insistent as it was in the early stages of the buying movement, when French serges opened at $1.25, speedily went to $1.55, and tricotines selling around $2.50 and $3.75 went by easy stages up to $5, $6 and $6.50 a yard. The last half of the year marked appreciations in values of 50 to 100 per cent from those of the early months, and yet first hands faced this prospect as a sheer artificiality and, in large measure, maintained deliveries of goods at far less than actual bids received. Few samples were prepared early for the Fall, 1920, selling period and the bulk of this business remains to be done within the purview and the actual calendar limits of 1920. The production draft was so heavy on the run of delayed merchandise of 1919 that it was absolutely essential to withhold samples until account of stock should be taken in the material bins.

Sport Note Is Strong

The outlook at this writing is for large orders on serges, gabardines, velours, polos and heathers, as special features. Whether of novelty or staple character a liberal business is indicated, especially in all manner of sport lines in view of the greater liking for outdoor life developed by those who were in the ranks or associated with the legionaries of the great war. Business in 36-inch goods also bids fair to be strong. In cotton warp fabrics the indications are not entirely clear, owing mainly to 40 cent cotton in December. In general, however, there seems no immediate chance of the market weakening in raw materials; consequently it is predicted that current prices in finished goods are likewise certain to be strong for the year, though the seller deplores a continued high-priced market with its possible eventual collapse.

A "Top Crop" of the World Cotton Conference

(*Continued from page 215*)

present system of concentric vicious circles. The raising of wages means the raising of the price of commodities. This will go on until some catastrophe puts a stop to it.

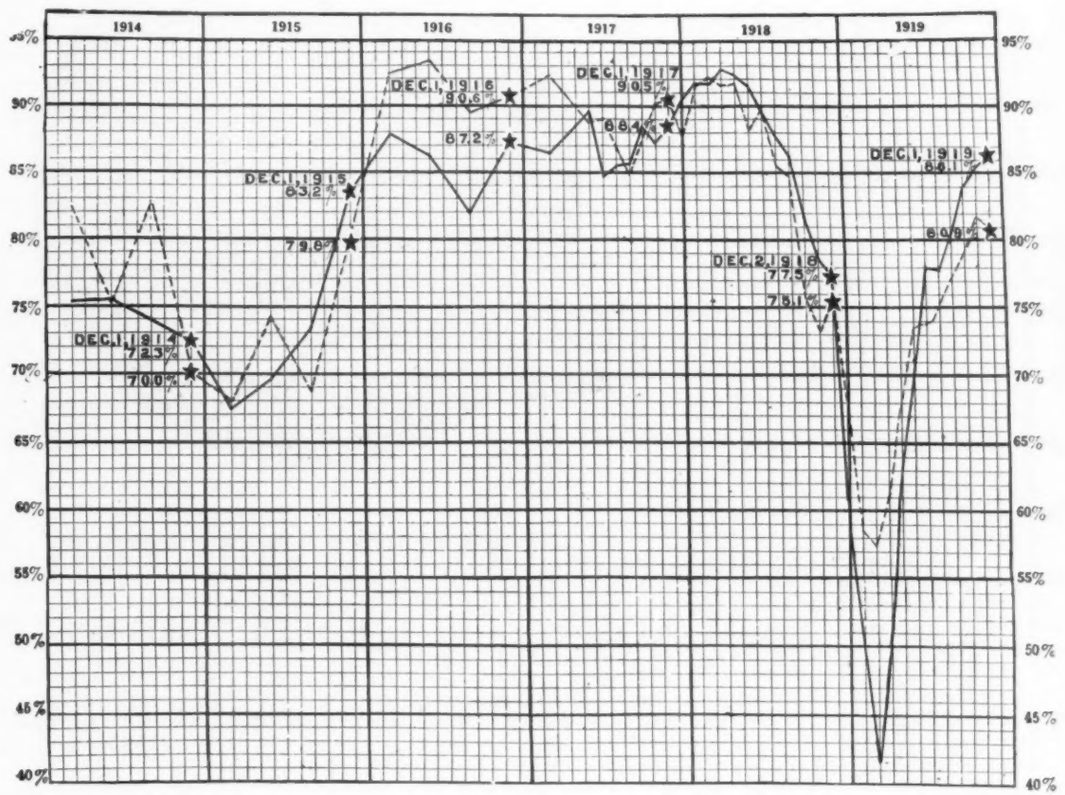
If everyone was included in the advances paid labor, and if everyone was only obliged to work the hours demanded by labor, there might not be this feeling. This is not the case and a very large percentage have not received such advances, and in consequence they feel these added costs. The old established economic law of supply and demand governs conditions today the same as it has in the past and the same as it will govern in the future. This is the one reason why prices at present are high, and is really the only reason.

Five conditions come instantly to one's mind which have more or less influence: They are the vicious system of Federal taxation, economic waste, the lavish use of money, the entire absence of thrift, and the lack of production. There is no question but that the war profits and excess profits taxes are a distinct inducement to the advancement of prices, but it seems to the writer that this is the least of any reasons so far given to account for the increased cost of living.

The economic waste and the failure to use our resources as they should be used in a time like the present come very close to being criminal. The mills of Fall River operate nearly 4,000,000 spindles, representing capital stock and bonds of over $40,000,000, with a present replacement value of over $210,000,000. This very large amount of invested values in this one city alone is idle two-thirds of the time, not taking into account Sundays and holidays.

It has been said the textile interests are reaping tremendous profits. The average dividend paid on these plants according to their present capitalization was only 14.486 per cent. for the year 1919. This, figured on the replacement value, is less than 3 per cent. on the investment. No one can consider such a return extreme except in one direction, that of the owners.

If the law allowed this immense property to produce what it could produce, and this plan was followed throughout the country, there is no question but what the high cost of living soon could be brought to a basis which would not be so extreme as at present.



PERCENTAGE OF ACTIVE LOOMS IN WOOLEN AND WORSTED INDUSTRY OF UNITED STATES

Charted by Merchants' National Bank, Boston

The broken curve shows the percentage of narrow looms that were running on the dates indicated. The solid curve shows the percentage of wide looms that were running on the dates indicated. The statistics on which this chart is based were compiled by the National Association of Wool Manufacturers prior to November, 1918. Since that date they have been compiled first by the United States Department of Agriculture and later by the United States Department of Commerce.

Selective Cloth Buying

helps to cut down clothing costs. Fabrics that have a reputation for dependability plus originality of style are much sought after by discriminating buyers. There's a reason for the continued big demand for Cleveland Worsteds. People are becoming educated to the fact that Cleveland Worsteds are made from pure wool, therefore, suits and garments made from our product, have more stability, hold their shape, and wear much better than suits or garments made from reworked wool.

OPERATING

THE CLEVELAND WORSTED MILLS CO.,
Cleveland, O.

THE ANNEVAR DYEING & FINISHING WORKS,
Ravenna, O.

REDFERN WORSTED MILLS,
Ravenna, O.

LAKE HODGSON WATER WORKS,
Portage County, O.

ODSONIA WORSTED MILLS,
Jamestown, N. Y.

ROWLAND WORSTED MILLS,
Philadelphia, Pa.

OPERATING

THE LANGFORD WORSTED MILLS,
Providence, R. I.

FERNCLIFF WORSTED MILLS,
Jamestown, N. Y.

FERN ROCK WOOLEN MILLS,
Philadelphia, Pa.

MONOHASSETT WOOLEN MILLS,
Providence, R. I.

SALISBURY WORSTED MILL,
Camden, N. J.

VULCAN COMBING WORKS,
Philadelphia, Pa.

Manufacturers of FINE WORSTED FABRICS
For LADIES' and GENTLEMEN'S WEAR

GEO. H. HODGSON, *V. President and General Manager*

Objects of American Cotton Association

How It Is Organized and Financed—Will Not Engage in Politics or Business

UNDER the leadership of President J. Skottowe Wannamaker, banker and cotton planter of St. Matthews, S. C., the American Cotton Association has had a remarkable growth within the comparatively short period since its organization. At the recent World Cotton Conference at New Orleans it was the accredited representative of domestic cotton growers, having taken the place occupied at the Atlanta Cotton Conference, in 1907, by the Farmers' Co-operative and Educational Union and the Southern Cotton Growers' Association. The former at one time claimed a membership of about a million, and the latter of several hundred thousand. The experience of the latter organizations seems to indicate that southern farmers are great "joiners," but not good "stickers" unless they obtain results. It is noteworthy in this connection that several of the most important objects of the American Cotton Association, including diversification of crops and higher prices, have been realized to a high degree during its short life; and even though growers have accorded the organization greater credit for these results than it deserves, the fact remains they have helped to swell its membership until it has become an important power in the South.

Mr. Wannamaker is the dominant personality in the Association; in fact, the principal objects of the Association and the plan of organization were conceived by him and the rapid development of the latter has been due very largely to his personal efforts. Associated with Mr. Wannamaker are leading cotton planters and bankers of every cotton State, with Harvie Jordan as National Campaign Director, and Col. Thomas J. Shackelford of Athens, Ga., as chairman of the National Finance Committee and its general field representative. The existence of a strong and representative organization of cotton growers is essential to spinners as well as to growers and other cotton trade interests if improvements in the growing, handling, marketing and financing of the crop are to be effective. No marked progress can be made excepting through co-operative effort of every important interest involved, and the organizations representative of each group must be of a character to inspire general confidence. Conferences at the World Cotton Conference at New Orleans between representatives of spinners' organizations and of the American Cotton Association were such as to stimulate respect and confidence. Those manufacturers who are not well acquainted with the objects of the American Cotton Association will be particularly interested in what President Wannamaker has to say in this connection.

Cotton growers, spinners and every other important interest identified with the trade are now co-operating through the World Cotton Conference in broad plans for the improvement of the industry. But, of course, effective world work with similar objects in view will not always be of a co-operative character; for instance, the American Cotton Association is interested in the promotion of warehousing companies under State aid, while the Union Cotton Warehouse and Compress Co. may be said to represent a national and much broader movement, including leading southern interests as well as spinners. That there is no vital antagonism involved may be proved by the fact that a more recent movement inaugurated by spinners for the benefit of the whole industry is receiving the hearty support of the American Cotton Association; this is the proposal of the National Council of American Cotton Manufacturers that domestic cotton exchanges so modify their future contracts as to allow the delivery at concentration points in the South and North of certified cotton held in bonded warehouses. A committee of the National Council has already asked officials of the New York Cotton Exchange to arrange a conference on the subject. President Wannamaker of the American Cotton Association is heartily in favor of the general proposition, but holds that New Orleans and not New York is the logical exchange to father this movement for the broadening of cotton contracts.

The American Cotton Association is a legally chartered institution for promoting and protecting especially the cotton growing interests of the United States.

Its membership is composed of farmers, bankers, merchants, warehousemen, ginners and all allied business and professional interests, which desire to aid in making successful the aims and objects of the Association.

The National Association, with its executive departments, clerical forces, etc., has its general headquarters at Atlanta, Georgia, located at present in the Georgia State capitol.

The cotton state divisions of the Association are administered by State officials and boards of directors selected from the various cotton growing countries in each State.

The county or parish Organizations are composed of members selected from the various militia districts or townships of each county or parish, and the district or township organization constitutes the basic unit of the county and state organizations, which makes possible the democratic principle of vesting the control of the Association in the hands of the people who constitute the membership and support the institution. Properly prepared constitutions and by-laws control the operating machinery of the various organizations upon a harmonious workable basis.

Will Not Engage in Business

The Association has no capital stock and will not engage directly in the buying or selling of cotton, building warehouses or in business of any kind. It will exercise its powers to promote the construction of warehouses, especially at local interior market points, assist in the organization of enterprises of special economic aid to the farmers in marketing their crops and in financing cotton in storage until sold.

The Association and its various subdivisions will be supported and maintained by annual dues collected from its membership in the form of Charter Memberships of $100 from bankers, large merchants and planters, and a small levy of 25 cents per bale from smaller farmers and 25 cents per thousand dollars invested in mercantile and other business interests, and minimum annual dues of $3 by each individual not coming under the above classifications.

Economic Reforms Advocated

Some of the economic reforms which will be pressed forward to accomplishment by the Association are as follows:

1. To secure the building of ample warehouse facilities in each cotton growing county for the purpose of the safe storage of cotton from the weather and thereby save to the growers the many millions of dollars now being lost through the evils of country damage; to have every such warehouse bonded under state or federal laws; to have placed in charge of each such warehouse an expert licensed weigher and grader appointed under state or federal law, so that the cotton growers may be fully protected on weights and grades, and that the cotton receipts issued by such warehouses may enable any cotton grower to borrow money at the lowest rates of interest when such cotton receipts are put up as collateral security, with banks locally, or other financial institutions.

Reforms in Baling and Compressing

2. Economic and efficient reform in baling and compressing; making uniform the tare or covering of the bale so as to eliminate existing antiquated and expensive methods employed in that department of the industry which at present penalizes the growers to an amount exceeding each year more than $100,000,000, based on investigation made by the Federal Government. To secure car-load rates on cotton compressed at the initial points of shipment.

Favors Net Weight

3. Selling cotton by net weight instead of by the present unfair and arbitrary regulations of the Liverpool Cotton Exchange, which fixes the deduction for bagging and ties at 6 per cent. of the gross weight of each bale.

Direct, But Controlled, Selling

4. To organize domestic and foreign marketing corporations, the stock of which is to be owned by cotton growers and their allied business interests for the purpose of enabling all of the growers to market their cotton and cotton seed direct to consuming domestic and foreign mills.

5. To regulate the supply of raw cotton to meet the legitimate demands of consumption by the mills, instead of perpetuating the present unbusiness-like system of rushing the staple on the market and permitting the prices to be hammered down under the deluge of an over-supply of cotton during the usual short selling period, aided and abetted by speculative interests and manipulations of future contracts through the exchanges. In any year a surplus of raw cotton is produced it is to be held in local warehouses by the growers until needed by the mills, and the spot cotton required by the mills will be sold slowly at prices netting a fair and profitable price to the growers.

To Regulate Differences

6. Price differences in grades will be regulated and enforced on the basis of the relative value of each grade when spun into yarns, and break up the present practice of the cotton trade fixing these differences in value by arbitrary and artificial processes which are so unfair to the growers.

Costs of Handling and Conversion

7. To ascertain and promulgate for the information of the growers the present fixed charges against a bale of cotton from local market points to final delivery at the mills in this country and in Europe; and to post the growers as to how and in what way the price to the farmer is arrived at and the items covering the cost of transportation and delivery of each bale to the spinners, which the growers have to pay for, including deductions for tare.

8. To ascertain and promulgate the actual cost of spinning a pound of cotton into yarns and the selling price of same by the mills. To ascertain the cost of converting a pound of the various kinds of yarns into the standard cotton goods and the selling price of same by the manufacturers. In this way the intrinsic value of cotton can be arrived at each year, and upon no other basis.

9. To ascertain the cost of converting a ton of cotton seed into the finished products by the oil mills and the market value of same in order to know the intrinsic, commercial value of cotton seed per ton.

To Furnish Statistical Information

10. To ascertain and furnish information to the membership covering the amount of American cotton consumed each month in the spinning mills of the world; the amount of such raw cotton on hand in spinning establishments; at the ports and in warehouses, that the actual supply of cotton unconsumed may be known and the actual quantity consumed also known. Such information is imperative for guiding an intelligent, safe and systematic system of so marketing the crop as to regulate the supply to meet only the needs of legitimate consumption and guarantee a fair profit to the growers on all cotton sold.

11. To gather accurate statistics covering the acreage planted each year in cotton, the monthly condition report of the growing crop; the effect of the boll weevil and other insects; the amount of cotton ginned each month; the movement of the crop to market and the amount held in local warehouses each month; and forecasts of probable yields.

12. To ascertain the world's requirements of American cotton each year and so regulate the acreage planted to meet such requirements in order to avoid the dangers of an over-supply with its attendant unprofitable prices to the growers.

Favors Crop Diversification

13. To conduct an active campaign through the state and county divisions,

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NEW YORK

BOSTON
78 Chauncy Street

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160 West Jackson Boulevard

WOOLENS
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Sales Office: 25 Madison Avenue

COTTONS

For Jobbing, Converting and Export Trades

at all times stressing the imperative necessity for each grower to diversify the crops planted on his farm, thereby making his food supplies at home and his farm operations self-sustaining. Upon no other system can the cotton growers prosper, no matter how high the price of cotton.

14. To urge the planting of fewer acres of cotton per plow. Plant only carefully selected seed of the best staple variety; fertilize and cultivate well the acreage planted and increase the yield per acre at less expense per pound of production. To ascertain each year the average cost of producing cotton, based on normal yield. To promote intelligent diversification of crops, and to develop markets for such crops, other than cotton, as may be profitably raised; to broaden the markets for raw cotton and to enlarge the uses for cotton and cotton goods; to improve and increase transportation and distribution facilities.

To Improve Living and Working Conditions

15. To urge the building of better rural schools and public highways. The building of better country homes with more comfortable furnishings and sanitary regulations. To overcome the drawbacks of illiteracy and promote in every way a higher degree of efficiency in the education of the rural population of the southern states.

16. The solution of the economic problems affecting farm life in the South to the end that the growers and their allied business interests may enter upon an era of continued prosperity and happiness.

Designed to Benefit Spinner and Grower

Cooperation and united action with membership throughout the cotton belt has become imperative to inaugurate economy and efficiency in the future handling and marketing of the cotton crop, so as to guarantee to the growers each year fair and reasonable profits above the cost of production.

The efforts of the Association will not only prove vastly beneficial to the South, but in the ultimate results of economic efficiency in marketing the cotton crop, will prove of great economic benefit to American Mills and the consumers of cotton goods.

President Wannamaker also states that the Association is non-political in the strictest sense, and does not permit matters of a political nature to enter into any of its discussions or deliberations.

This review of the objects of the American Cotton Association is based upon statements of President Wannamaker, and the following article outlines his views regarding the establishment of a broad spot market linked with the New Orleans Exchange.

Growers Favor Broader Cotton Contract

Want Numerous Certification Points— New Orleans Exchanges Asked to Lead

By *J. Skottowe Wannamaker*, President
American Cotton Association.

THE American Cotton Association, in cooperation with the various lines of the cotton industry and leading business interests, is strongly working for the establishment of a Spot Cotton Market Exchange in the south, with a chain of warehouses of certification. This is recognized as one of the greatest needed reforms and will bring benefits to the entire cotton industry.

No stocks, or bonds, or any form of security have such a world wide market as cotton. Nothing can be so readily sold in so many markets at a very small concession from the market price. Nothing can be immediately sold for near or distant future delivery on so many exchanges in so many countries as cotton. Two guarantees are necessary and cotton will soon take its rightful place as the best collateral in existence. The lender wants to be sure, first, that the bales are where the warehouse receipt says they are; second, that they are of the grade stated in the certificate. Then he will lend the money gladly.

Cotton should be warehoused immediately after ginning, either in a warehouse under Federal supervision or State supervision; it should be graded by a government grader; this renders it absolutely bankable, as secure as gold. It is liquid and can be converted into cash at any time.

New York Not a Natural Cotton Market

New York is not a natural cotton depot. It is only naturally a link in the chain of domestic and foreign transportation, largely the latter. New York is not near any spinning center and is far from the cotton plantation. It is only as a result of conditions existing in '69 that the New York Exchange was established. It has been proved often this year, if indeed such proof was needed, that New York is not a natural storage place for cotton. Cotton has never been offered to New York except as the result of inflated prices and the greatest necessity to have it delivered on contracts. Cotton in the South today is bringing a far higher price than cotton in New York.

As a result of conditions that exist now and that have existed for years, cotton is absolutely the football of the gamblers; the bear gambler kicking the ball ninety-nine times to one kick by the bull. As a result the producer pays the penalty and the manipulator and gambler reap the harvest.

A Result of Civil War Conditions

About six years after the war between the states, when the poverty and bankruptcy of the southern states made them entirely dependent upon the financial accommodations New York could furnish to the merchants of the cotton producing states so as to enable them to extend credit in the way of goods to the producer, trading on the exchange in cotton futures was developed. At that time but little cotton was grown in Texas and none at all in Oklahoma, then the Indian Territory, the largest portion of the cotton crop being produced in the Atlantic States from Virginia south, where it was shipped to Europe via the ports of Norfolk, Savannah and Charleston.

In those days the South was helpless; it had no voice in the framing of either its commercial or political life. The Government of the South was in the hands of 4,000,000 slaves under the leadership of the carpet-bagger; the South was bankrupt. To exist it had to produce cotton; it was only their's to do or die. In those days there were but few cotton mills in the South; the domestic consumption of cotton in 1871 was about 91,000 bales. It was not therefore difficult for New York to attract a reasonably large stock of cotton from a comparatively nearby territory and she naturally became an important and legitimate cotton market.

Carries Little Actual Cotton

On February 20th, 1880, when New York was about at its zenith as a real cotton market, the cotton warehoused there was 294,449 bales, or about 5.1 per cent. of the crop of that season, which was 5,752,000 bales. On the first of November, 1919, the warehouses of New York contained only 47,033 bales, or 43/100 of 1 per cent. of this year's probable commercial crop of 11,000,000 bales. The reason for this reduction in the stock carried is that the cotton mills that have been built since 1880 in the cotton territory that was formerly tributary to New York consume nearly all the cotton that is raised there and can afford to pay far more for it than it would return if delivered on the future contracts that are bought and sold in such enormous volume on the New York Cotton Exchange.

Amount of World's Crop

In its raw form, including the seed, the world's present cotton crop is now worth at least $200 per bale, or about $3,500,000,000. In its manufactured form its value is about tripled and would approximate $11,000,000,000. The total capital invested in the production and manufacture of cotton and the cotton seed industry recently has been estimated at approximately $30,000,000,000.

About sixty to seventy per cent. of the world's cotton production is grown in America and this year's crop of about 11,000,000 bales will be worth about $2,200,000,000. Of this 11,000,000 bales, about 3,500,000 bales, or thirty per cent. will be consumed by mills located in the southern states chiefly in the Carolinas and Georgia, and the remainder of the 7,500,000 bales, worth $1,500,000,000 will be shipped to the New England mills or exported.

Has Warehousing and Financing Plans

The American Cotton Association, with the mills, farmers, merchants, bankers, professional and business men, as its foundation stone, is pushing the building of warehouses; a warehouse or warehouses for each county, owned and controlled by the people of the county, operated under the State or Federal Warehouse Act, sufficient to hold the cotton of said county. That is the program they are pushing throughout the length and breadth of the cotton belt, so that the entire South will be dotted with warehouses and the marketing of cotton stretched over a period of twelve months, instead of being rushed on the market in the harvesting period of three months, seventy per cent. being the average amount of cotton sold in these three months heretofore.

The next link will be concentration warehouses. The American Cotton Association is forming a bank, export and discount corporation for the purpose of effecting direct sales of cotton at home and abroad, their plans are well laid and it is the consensus of opinion of men who have given lives of study to this great question that the opportune time has arrived to absolutely change conditions which have heretofore existed in the handling of the cotton industry. Antiquated methods must be relegated to the scrap heap; a southern spot exchange should be established; New Orleans has a golden opportunity.

New Orleans Should Grasp Opportunity

New Orleans, by establishing warehouse of certification at concentration points throughout the cotton belt, by making certain radical changes in the rules and regulations so that a contract will assure the delivery of spot cotton from these certified warehouses can become a great spot exchange, absolutely controling the situation,

With warehouses in every county and parish throughout the length and breadth of the cotton belt, operating under the State or Federal Warehouse Act, with concentration warehouses, with Government graders for all of these warehouses, we are facing the most complete change in the cotton industry that has ever occurred since the first slave was sold for the purpose of producing cotton and which resulted in the South swapping her birthright for a bitter mess of pottage. The handwriting has appeared on the wall; special committees have been appointed by the new England spinners to confer with the New York Exchange; great dissatisfaction exists, not only throughout the entire cotton industry, but among the members of the New York Exchange.

Chicago is making a bid for this business. In a recent address before the Chicago board of Trade, Theodore H. Price unhesitatingly recommended that Chicago take steps to establish a spot exchange for the entire cotton belt which was tributary to Chicago and not to New York.

The New Orleans Exchange, the Chamber of Commerce of New Orleans and the Chambers of Commerce from the various cities of the South should immediately take steps to cooperate and effect this great change in the cotton industry. Opportunity is knocking at our door, she offers the privilege of changing antiquated methods which were established in the handling of cotton in about 1869, so that by this change the producer and the manufacturer in every line of the cotton industry will receive great benefits. She offers a golden opportunity to the South to attend to her own business. Will she accept this opportunity? Common sense tells us but one answer and the answer she dictates is *yes*.

It is said that history repeats itself; indications are that this is also true in commercial life. Following the war between the states the New York Exchange was established, since which time the price of cotton has been set in New York. Following the great world war, a great spot exchange should be established in New Orleans for the purpose of permitting supply and demand to regulate the price of cotton, to do away with the manipulations and many other unjustifiable actions which have been exposed upon the New York Exchange. This change will be hailed with joy by practically every line of the cotton industry. It means the establishment of a great exchange for a world commodity, a world necessity.

"A Better Contract"

The TEXTILE WORLD JOURNAL, in an editorial entitled "A Better Contract," says:

"That the New York Cotton Exchange could perform an important service to the industry, and at the same time tend to correct the very generally accepted opinion that the Exchange is operated solely for speculative purposes, by revising its contract to allow delivery on it of certified cotton at bonded warehouses in various concentration centers throughout the country, has been suggested in these columns at various times. The same plan has also been ad-

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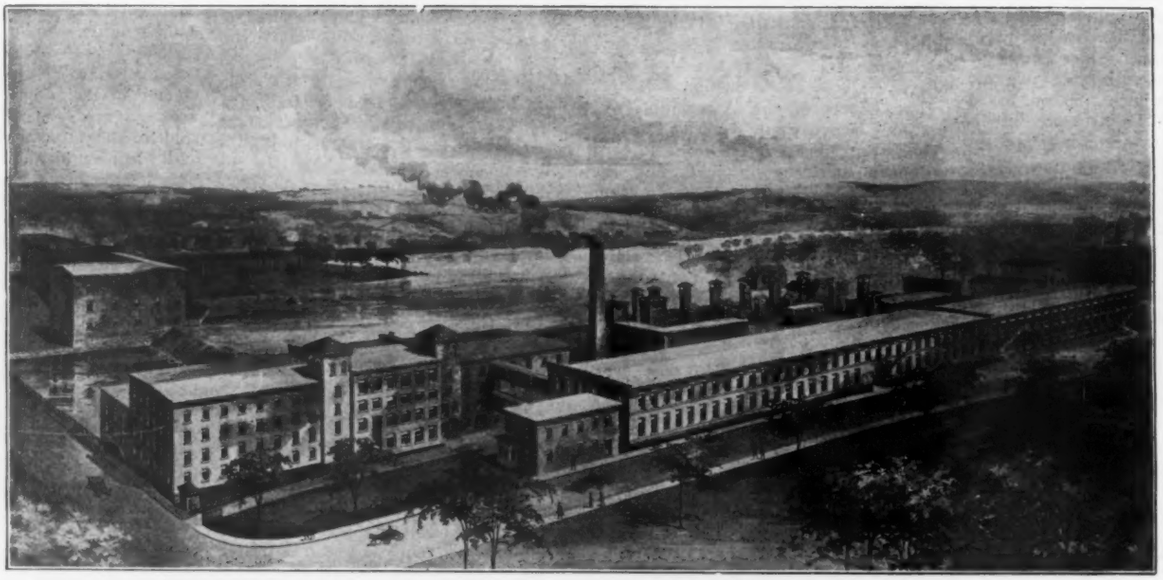

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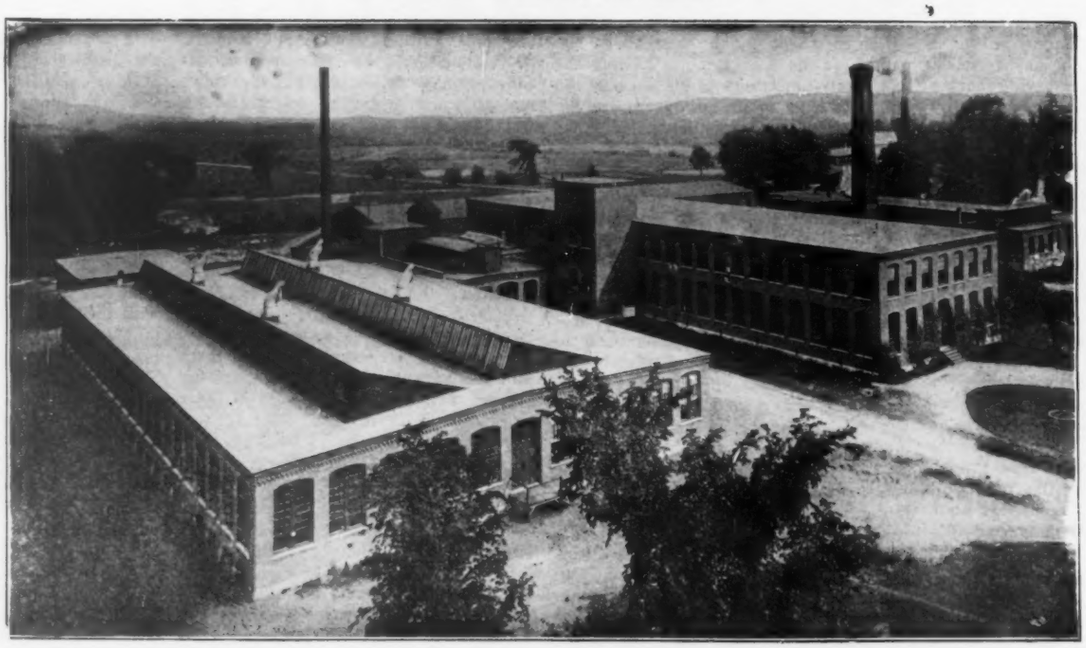

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vocated by cotton grower's associations, but the officials of the exchange have never given evidence that the suggestions warranted their serious consideration. Now that the National Council of American Cotton Manufacturers has appointed a committee to confer with the officials of the local exchange on this subject it is possible and probable that the latter will at least give it serious thought.

"There is a certain ultra-conservative, old fogy element of the exchange that will continue to fight against innovations and that is perfectly satisfied with present business conditions, but a constantly increasing number of its members is alive to the modern idea of giving maximum service to their clientele, to the importance of a broader contract, and to the desirability of making consessions to critics among growers and manufacturers that may tend to check further restrictive legislation. Not all of them may be able to visualize the importance to the industry of a real spot market, or of facilitating transactions in actual cotton, but they do believe in the principle of giving maximum possible services to their customers, and there is excellent reason for believing that, if the proposition of the National Council were put to a test vote, it would receive the support of a majority of the Exchange members."

Will Allow Economic Law to Operate

With the contracts calling for the delivery, or carrying the privilege of delivery from the great warehouses in New Orleans, or at certain warehouses in the various cotton producing states, or from certain warehouses of certification, the price of cotton would be regulated by the law of supply and demand. Each contract would mean that the cotton specified therein could be secured. How is it possible for the law of supply and demand to operate today? January and March hundreds of points above July and May. If a manufacturer attempts to hedge his cotton by selling July he will be caught between the upper and lower millstone and ground to a pulp. The law of supply and demand is an unknown quantity on a market which does not carry the guarantee of delivery of the property. This great law has long since been dynamited and has ceased to function. The price of cotton is subject to the whims of the manipulators; the producer pays the penalty and the manufacturer and consumer of cotton goods of course also suffer.

Has Manufacturers' Indorsement

The establishment of spot exchange, with warehouses of certification as outlined above, is just as necessary to the proper handling and economic reform in the cotton industry as air and water are to human life. This reform has the endorsement of the manufacturer and, in fact, practically every legitimate line of the cotton industry and will meet with their cooperation.

This change will mean that for the first time cotton will take its proper place. The law of supply and demand will mean active competition from the various lines of the cotton industry and from the legitimate speculator and investor. It means that no longer will cotton be the football of the gambler. This change will remove the manipulator and parasite, as their opportunity to operate will be removed.

The producer of course had no voice in the establishment of the Exchange in New York in '69; the South was then bankrupt. Conditions to-day are far different. They recognize the necessity of these economic reforms; they are ready to cooperate and assist in the same. What will New Orleans do? What will the various cities of the South do, where there are Exchanges in operation? What will the Chambers of Commerce do? What will the business men of the South do?

Don't forget that not only the producer and manufacturer, but every legitimate line of the cotton industry will be greatly benefited by this change.

American Art Development in Textile Designs

Enormous Strides Made During the Last Year—Opening Given by the War and Encouragement by Manufacturers

By *a Member of the Staff*

Development of the designing art as it affects textile manufacturers has been a matter of contemplation as well as of serious consideration by manufacturers of a wide range of fabrics. It has been appreciated that ever since before the war started the comparative isolation of this country, as far as assistance from foreign manufacturers was concerned, made necessary a study of the sources of design in order that there should be built up in this country an art that in its practicality would be of invaluable assistance to producers. It has been difficult to induce artists to adapt their art along commercial lines, but with the study of ancient fabrics and art motifs a very encouraging response has been discovered, with the result that there has been a national development along these lines which promises much for the future. Prominent in this movement has been the Art Alliance of America, which has worked assiduously to give to industry the results of artists' researches for original designs that would be adaptable to fabric art. Many problems have been met and many difficulties surmounted, but the status of art and its relation to textile designing seems much more encouraging as a result of these efforts than ever before. The practical working out of these problems has been an achievement of which manufacturers should be glad to take advantage, and they are given an opportunity through the good offices of the Alliance to avail themselves of the fruits of its labors.

CONSIDERATION of the advancement in textiles in the year just closed, and for the war period, for that matter, shows concrete developments that have been recorded in the adaptation of American industrial art to the products of textile mills. The interest of silk and cotton piece goods manufacturers was drawn to this subject in the war period as it never had been before, and there are certain results at hand capable of graphic reproduction, to render at least an appreciation of the progress made. What the accomplishments portend for the future cannot be known and can only be vaguely estimated at this time. If they mark the beginning of a new epoch in American textile patterns, it would not be at all surprising. Certain it is that prints have been turned out that can proclaim their distinctive American origin with satisfaction and with excellent chances of survival. Silk men are pleased with the progress they have made; but there is an opinion around the market that cotton men have so far missed an opportunity.

Evidences of a Change

It is not so many years ago, as almost any silk designer will attest, that the pattern for a printed fabric must have the stamp of Paris to obtain a hearing. For a native art idea to obtain a foothold against a commercial habit so deeply rooted as this one marks quite a change. True, the interruption of communications and the interruption of production abroad during the war are partially responsible, but there was a beginning made that promised much, even before the war gave a more favorable aspect to the enterprise.

Of course a more rapid growth was certain when circumstances combined as they did. The attention of the manufacturer could be more readily caught when the call of patriotic impulse was high, and, at the same time, the claims of the usual sources of design were not being pressed. The work of American craftsmen came to the front rapidly in this period, and is now so definitely recognized that it has assumed the proportions of a movement that will probably not be denied.

The leading exponents of a distinct American textile art really found no special inclination among artists to adapt their ideas to commercialization, in textiles. And with manufacturers there was slight inclination to try to get needed patterns from the home talent. Hence, there was a double problem at the outset. It was intensified, on the primary side, by the lack of something that is quite extensively developed on the other side of the world, that is, the undevelopment of industrial art schools, and the low state of industrial art drawing in the public schools. Correctives of this condition have been started, but as compared with the need, of course, only modest results have been accomplished so far.

The development of the creative imagination along the lines of furnishing suitable textile designs is thus proceeding slowly, and yet it has made progress to the extent that encouragement by manufacturers, with vision and the instinct for more certain returns in later years, has been given generously and is openly on the increase.

The relation of design to manufactures is carefully fostered by the Art Alliance of America, 10 East 47th street, and it is from a recent exhibit by this association that concrete evidence of progress is obtained. By calling photography into play, and then the reproductive processes of the graphic arts, it is possible at this time to illustrate this article with the concrete evidence of progress and accomplishment. The fabrics themselves, here represented from photographs made of samples of the textile, have been in the selling markets a season or two and in more than one instance have made a pronounced success. It is in silks and cretonnes, largely, that the textile designs have been brought into production. The successes so far made serve to inspire groups of young artists to persevere in the training that has excellent prospect of making a distinct, commercial and valuable thing of the experiments attempted in American industrial art. The manufacturers themselves are increasing their patronage of these efforts constantly, and it is not stretching the facts at all to state that at this time there is a large body of American dress decorative textiles going into immediate use that are of specific American design as well as of American manufacture. Naturally the patrons of this movement approach the matter from the very practical side of accomplishment, and it is really a matter for congratulation that there has been so much of a start made.

National Expression Achieved

Experts who have gone over a sample collection of these American textile art productions comment on one thing above all others when consideration is given solely to the technique displayed. This is the factor of spontaneity and ease of expression.

"There is something in this being a land of liberty; there is something expressed of the heritage of freedom enjoyed by our youth," is the way one connected with one of the largest silk houses comments on a series of designs that have gone clear through the commercial pathway to success in the market. It is pointed out in this quarter, also, that the modern school is showing itself distinctively, in getting away from a small figure, frequently repeated, to the embodiment of a large idea and often with an elaborate ground. One way of looking at it might be, that, as this is an era of what is called "free verse" in literature, so there is a free design in the textile patterns being wrought by the young artists in this American group which is showing that it is devoted to a beauty and utility in a practical way. Repetition is, of course, a certainty in a textile design, and yet a positive gain is undoubtedly made when manufacturers, by reductions or other changes, are enabled to adapt elaborate drawings of promise to dress fabrics and dress patterns. In this connection, it might well be said that the soft and flowing folds that are giving a distinct character to the newest dresses, show to perfection the richness and completeness of the spontaneous American idea in textile design.

Tests of Originality

There is not the shadow of a doubt of the originating quality in the work of

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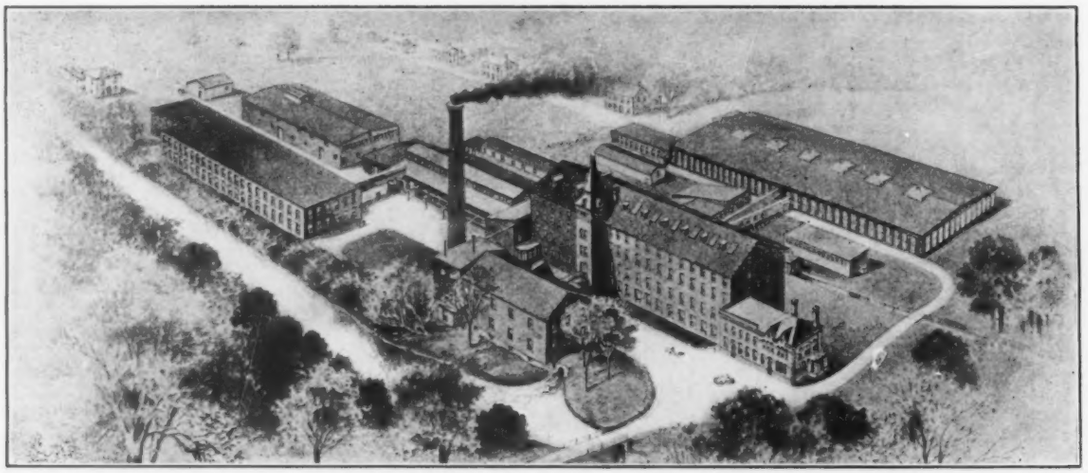

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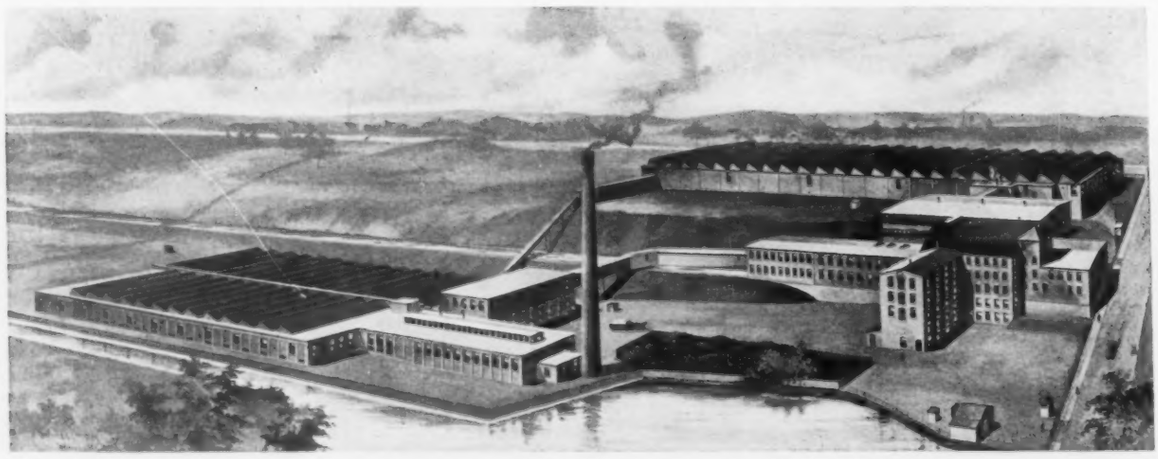

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he past few years in American textile designs. In substantiation of this assertion, take the case of the cathedral heme which was originated in this country about a year ago, with a striking design representing Westminster Abbey. Others followed, in series, and have been present in the fabric market for months. On the other hand, only recent cables have told of the appearance of the cathedral theme in textile weaves and prints on the Continent, and it is shown that its particular textile adaptation followed the holding of a fair in France for the cathedral windows. The American development antedated that fair, and thus its precedence is unchallenged.

As the example cited draws upon the Old World for the source of inspiration for the design—historic cathedrals being, of course, largely wanting in the New World—it is especially timely to claim the conception and the craftsmanship for the American group of workers, together with the transfer of the design to the cloth and the production here. It is to be remembered, of course, that the textile designer has the whole world to range for the inspiration of his, or her, designs, and is further not limited in time. Past times

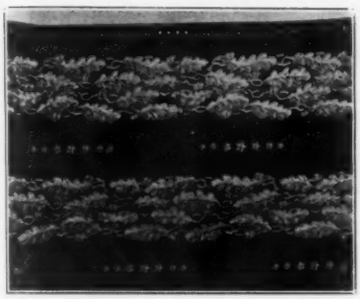

FIG. 2. DESIGN BY HENRI GUIGNON, REPRODUCED BY H. R. MALLINSON & CO., IN SILKS

and the culture of the ages may be drawn upon clear back to Creation. The design represented in Fig. 1 illustrates the point. The inspiration is Persian, a thing that the conventionalization of the hunter, his primitive weapon and the animals he stalks does not in any way

FIG. 1. DESIGN BY MARTHA RYTHER, REPRODUCED BY H. R. MALLINSON & CO., IN CHIFFON AND SILK; A THIRD PRIZE IN SILK DESIGN CONTEST, 1918

serve to conceal. Indeed the animals are easily recognized as conventionally and unmistakably Persian. This prize design was reproduced in chiffon and silk, and besides the fullness of floral detail, other notable features are the compression of the action story in the design and the continuous, compact repetition of it between the four spear-points. Justice is hardly done to the manufacturer's sample in the half-tone reproduction, as the beauty of the delicately tinted background is lost in the gray tone of the cut.

Sources of Inspiration

The wealth of inspiration in American flora and fauna is by no means wanting. It may be traced in several of the designs on the fabric market, and unmistakably, too, in certain of the designs here reproduced. While extended discussion of this feature of the movement would be of great interest, its complete proof is rather subordinated to the more important fact that the creative faculties of talented America are brought into line with the makers of American wearables. This is now true to a conspicuous degree. The inspirational founts are so numerous and so vast that the gaining of the impetus, the will to produce, is in itself almost a sufficient guarantee of steady progress in production itself. The flower and bird motifs, the irregular patterns obtained from cross sections of native woods with others from native gems, precious stones and rock formations, that have come from and are continuing to come from textile looms and presses in America uphold the native sources of inspiration without recourse to extended argument.

To a French Hero

Fig. 2 of the accompanying illustrations is in a class by itself. The design was produced by direct arrangement between manufacturers and artist, in this country, when the war was at its height and has an interesting story. The design was made soon after the Allied commands were consolidated under Marshal Foch.

The artist was 3,000 miles away from the event. And in the newspaper dispatches a single line told that the insignia of the commander was being increased by one oak leaf. His insignia had been three oak leaves before; now it was four oak leaves. This mark of honor is the principal theme of the panel. There are four lines of oak leaves in the chaplet. The stars of his rank complete the design and give it that intense patriotic and military aspect of the times; hence the dedication "To Marshal Foch," of an important textile design as crystallized in a few lines of a newspaper clipping. Produced in blue and gold in de luxe silk and indestructible voile, this was soon one of the most familiar fabrics in the market. A dress made of it, with the dedication line of the selvage used in the pattern as striping, was the work of a famous Fifth avenue store, and made a notable

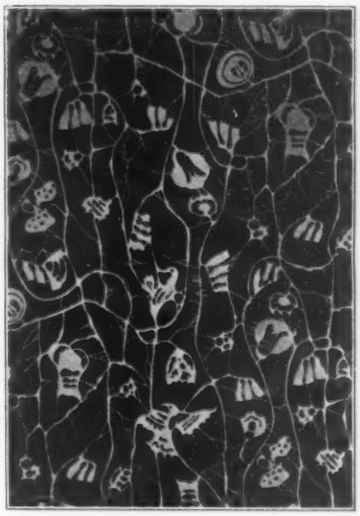

FIG. 3. DESIGN BY MARGUERITE ZORACH, ORIGINAL DESIGN IN BATIK, REPRODUCED BY BELDING BROS. IN SILK; ALSO MADE IN REVERSE WITH DARK DESIGN ON LIGHT GROUND; SECOND PRIZE IN SILK DESIGN CONTEST, 1918

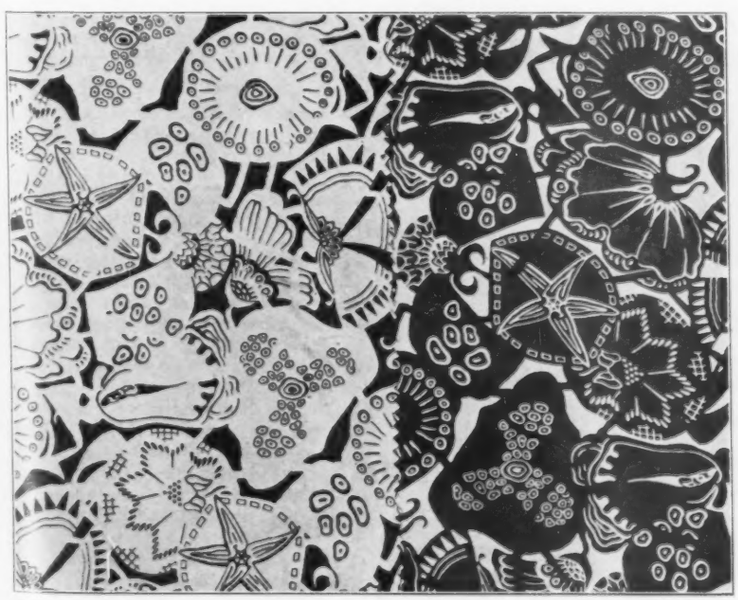

FIG. 4. DESIGN BY MARGUERITE ZORACH, REPRODUCED BY H. R. MALLINSON & CO. ORIGINAL DESIGN MUCH LARGER, REDUCED FOR REPRODUCTION IN SILK IN SEVERAL COLORINGS; THIRD PRIZE SILK DESIGN CONTEST, 1917

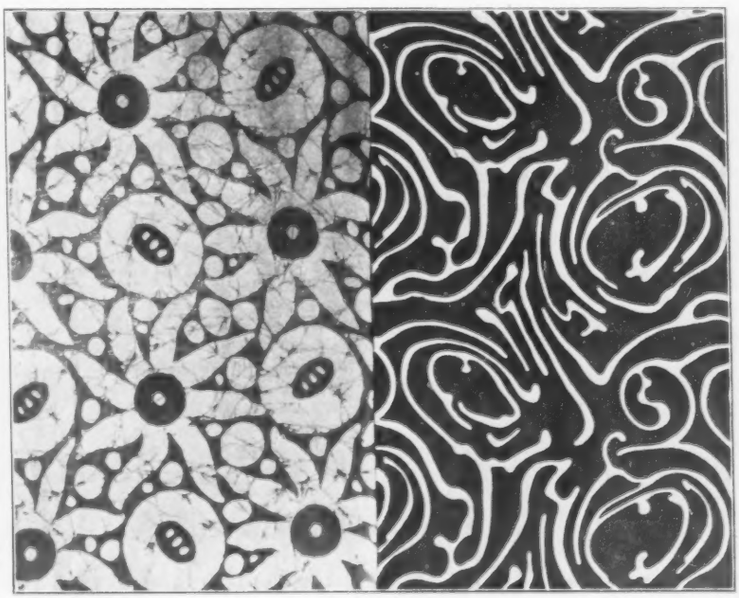

FIG. 5. DESIGN ON LEFT BY JEAN PAUL SCHLUSSER; ORIGINAL DRAWING WAS MADE TO SIMULATE BATIK; REPRODUCED BY H. R. MALLINSON & CO., IN SILK AND GEORGETTE. DESIGN ON RIGHT BY ALICE HURD, REPRODUCED BY H. R. MALLINSON & CO., IN SILK ALSO GEORGETTE, SEVERAL COLORINGS, SECOND PRIZE SILK DESIGN CONTEST, 1917

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window display in that establishment at the time.

Types Showing Modern Influences

Fig. 3 furnishes a striking example of manufacturing adaptation. The original, by Marguerite Zorach, that won a second prize in silk design contest in 1918, was originally done in batik. The manufacturers adapted the design to textile reproduction and also made it in the reverse, that is, in a dark figure on a light ground. Miss Zorach's handiwork in this instance is more than ordinarily successful in breaking away from bald and bare repetitions. So free are the lines and the recurrent elements that the effect of spontaneity is most pronounced. In draping, the irregularity of line gives that freedom from restraint that has been spoken of before as the keynote of modernness in the American movement.

Fig. 4 is another modernist design by Zorach reproduced by another firm in several colorings, black and white, white and black, navy and white, white and navy, in pussy willow and indestructible voile. It was the third prize winner in the silk design contest of 1917. The original design was much larger and was reduced for reproduction. The contrast, on reversing the design of figure and background is marked, and is well worthy of critical inspection. The outline has been purposely superimposed by the photographer on the figured pattern to get the benefit of the reverse disposition.

Fig. 6 gives a display of two fabrics that are essentially different. The main interest, from the artistic and textile reproductive standpoint, in the design made by Jean Paul Schlusser, on the left of the picture, comes from the circumstance that the original drawing was made to simulate batik. It was reproduced in both silk and georgette. This design was also privately arranged. The other design, by Alice Hurd, was the second prize winner in the silk design contest of 1917. In pussy willow silk and georgette fabrics the pattern has had a wide vogue. It went through several colorings, two shades of brown, blue and tan, blue and white, blue and green, black and white. This American inspiration also portrays the freedom and ease that have been spoken of as characteristics of the modern school in other instances.

Fundamental Problems

To be sure, the logical development of native textile designs is not easy to forecast. Designing in fashions for the wearer is one thing; designing patterns for the loom or the printing machine is quite another. Style shows around a completed product give a visual demonstration that bring an almost immediate response in merchandising returns. In the more remote field of endeavor, so diverse are the problems of adaptability that the selection of the best mode of stimulating interest is in itself no simple matter, especially when correlated problems are sure to arise and demand attention at the same time. For that reason discussion of this subject requires a consideration of related items such as would be pertinent to the direction of the creative faculty into commercial pursuits connected not alone with textiles, but with other commodities produced in industrial arts either for personal adornment or decorations and furnishings. New things in jewelry, wall papers, upholstery—all come within the purview of the art worker projected into commercial pursuits.

When so many diversities are taken into consideration, it is the more realized that it is no easy matter to obtain an artistic concentration within the limits of textile adaptation.

However, with commendable patience many progressive firms are encouraging those who are disposed to excel in drawings adaptable to textile reproductions. Enthusiastic and devoted teachers are providing guidance and results are already beginning to show. The field for expression of artistic purpose in textiles is by no means narrow and it has its distinct rewards. The initial problem is one of selection by the individual—whether he will work in tones and patterns that can be used in costuming, or whether he will insist on mastering the technique and mixing colors for a picture for mural decoration. The lure of the latter on the old road to Fame is strong, even though it is recognized that the commercial age summons the highest talents into well rewarded commercial pursuits. Naturally the initial problem of selection confronts the maker of drawings, and must be decided before the manufacturer's problem comes into play at all. Manufacturers have shown a willingness to allow elaborations in theme and figure that goes far to dispose of the ultra conservatism that marked former times.

What Visible Results Tell

On their part, designers are battling with their problems and nothing could demonstrate better the progress made on the related items than the visible results. These go far to show that the initial ventures develop the possibilities of change in contemporary textile design. Such a change would doubtless be expansive and constructive, rather than radical. For it is evident, also, that existing designs cannot be dispensed with because a new aspect of this subject has developed. Existing arrangements along lines logically worked out, in view of the conditions, admit the new patterns, while, at the same time, retaining the best of the old. In this respect a gradual development is much better than a sweeping change, and it is further believed among friends of the movement that not a few refinements are essential if the progress so far noted is to be made lasting.

Tribute to Cleverness

A prominent French artist recently said here that American art was clever, direct and practical. "A new art must come from America," he declared. "This art will come from the thought which has created the skyscraper and the wonderful machinery you have devised in this country. You have already created enough to indicate the extext of your possibilities. For one thing you have actually created a new landscape. The volume and proportions of your skyscrapers are absolutely perfect. If you only realized it, a great future for art lies in your factories. When people understand machinery as well as they understand hand process, unbelievable things may be accomplished in fabrics." Obviously, the textile designers take readily to the idea and are putting it to the practical test.

Cotton Exchange Attitude on Broader Contract

(*Continued from page 216*)

tent, though less completely in the merchandizing of several other basic commodities; but the great majority of the various branches of business as yet know little or nothing of it.

Too much space would be required for the description in this article of the manner in which the entire cotton using world has gradually been drawn, in the course of the past half century, into participation in this great system of "hedging," or price insurance, through the purchase and sale of future contracts on the Cotton Exchanges. Suffice it to say that the system is today so elaborated that holders of unsold cotton in Europe or Japan continually resort to the New York and New Orleans Cotton Exchanges in order to "hedge" the cotton by sales of future contracts, while as often European or Japanese cotton merchants, cotton manufacturers or distributors of cotton goods resort to the same markets for the purchase of "hedge" contracts against the commitments they are making in actual cotton or in cotton goods to be delivered in the future.

It is by the interweaving of these multitudinous purchases and sales of future contracts, originating in every quarter of the globe, that the price fabric in the markets for raw cotton is really created and given firmness and dependability at the present time. And, to repeat, only in the rarest instances do the buyers and sellers of these "hedge" contracts intend or desire to take or to make delivery on the Cotton Exchanges of the actual number of bales of cotton designated by the terms of the contracts themselves. What they do desire, however, and what is in fact indispensable for the proper functioning, from their point of view, of the future contracts for which they commit themselves, is that the relativities of price, as between the contracts and actual cotton, should remain undisturbed; that, in short, they should not be exposed to changes in the relation between actual cotton available for delivery on the contracts and the contracts themselves as such. For changes of this kind must by the very nature of the case work to the advantage of one side and to the disadvantage of the other amongst those having outstanding commitments in future contracts. Either those who are "long" of "hedge" contracts will gain and those who are "short" of them will lose, or else the opposite will occur. Whereas the essential theory of the entire system is that neither side shall gain or lose, but that both shall obtain equal protection from, or insurance against, losses occasioned by changes in the general price level for actual cotton and future contracts alike.

A Necessary Preface

What has been said may seem to the reader an over-long preface to the main matter of this article, namely, the attitude of the New York and New Orleans Cotton Exchanges towards the proposal that deliveries of cotton upon future contracts should be permitted, not only from warehouses situated in the same cities as the Exchanges themselves, but also out of responsible bonded warehouses situated here and there throughout the country, wherever the concentration of cotton in considerable quantities takes place in the normal course of commerce. The justification for the preface, however, lies in the fact that a precise understanding of the nature and purpose of the future contracts made on the Exchanges is necessary if one would understand all the aspects of the matter which must be given consideration by the members of the Exchanges.

Though the suggestion that the Cotton Exchanges, and especially the New York Cotton Exchange, should modify the terms of their contracts for future delivery so as to make possible the delivery of cotton upon such contracts out of properly certified and bonded warehouses, situated elsewhere than in New York and in New Orleans, is at the present moment much under discussion in the cotton trade and industry, it may be said at the outset that, at least in so far as New York is concerned, the suggestion is not a novel one. Not much interest in the project has ever been shown in New Orleans, presumably because the members of the New Orleans Cotton Exchange and the New Orleans cotton merchants in general have felt that the normal presence in New Orleans of a large stock of actual cotton suffices for the needs of the local futures market, and that nothing in the situation of that market calls for a venture among the complications to which the inclusion of stocks of cotton elsewhere might conceivably (and, indeed, very probably) give rise.

In New York, on the other hand, there began to be a feeling, at least fifteen years ago, on the part of a considerable number of members of the trade that the stocks of cotton regularly carried in New York warehouses were inadequate to afford proper protection to the futures market on occasions when a violent speculation in cotton (or contracts for cotton) was under way on the Cotton Exchange. The excesses of the inordinate Sully speculation of 1903-1904, and the heavy losses incurred by a majority of the New York trade as a result of the collapse of that speculation, not unnaturally led many to think that if it had been possible to deliver cotton to the speculators out of warehouses all over the South, instead of solely from those in the Port of New York, they would either have left the speculation unattempted or would have desisted from it long before it assumed such potentially dangerous proportions.

Many Favor "Southern Warehouse System"

Accordingly, it may be said that the idea of a general system of contract deliveries from suitable warehouses in various parts of the South came into being among the members of the New York Cotton Exchange as long ago as 1904; and this idea has never ceased to be discussed from that time to the present. At an early date a representative committee was appointed by the Board of Managers of the New York Cotton Exchange to consider the proposal, to investigate the facts in connection with it and to make suitable recommendations on the subject to the Board and other exchange as a whole. In one or another form this committee has continued in existence without intermission to the present day, and it has submitted numerous reports to the Board of Managers, most of them strongly supporting the scheme for a "Southern warehouse system," as the proposal is commonly designated in the discussions. In the earlier recommendations of the committee the stress was chiefly laid upon the advantages to the members of the Cotton Exchange as a body of having large Southern stocks of cotton available for delivery on New York contracts in cases of speculative "cornering" of the contract market, or of excessive manipulation of the price of deliveries for a given month.

More recently, however, and especially since the adoption by Congress of the Federal Cotton Futures Act

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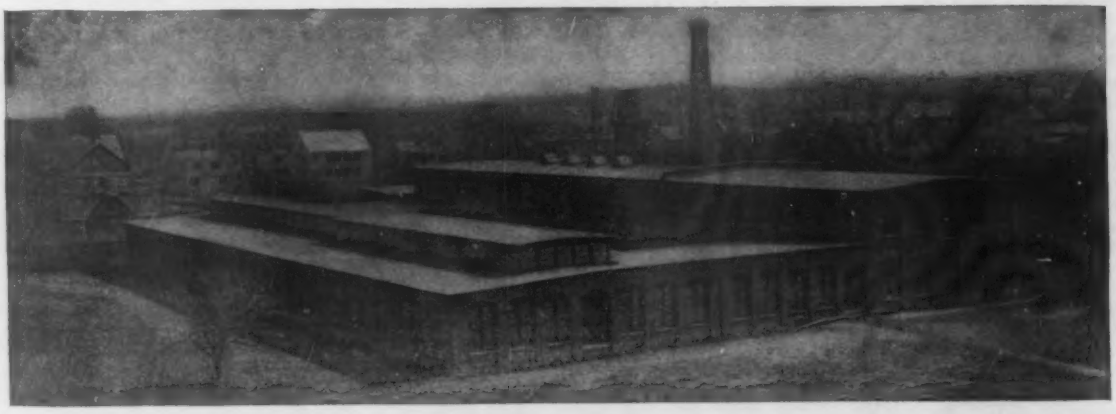

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regulating the terms of the contract for the future delivery of cotton used upon the Exchanges, it has been urged that the "spot" business of the members of the Exchange would be greatly enlarged, if contract deliveries from dependable warehouses in the South and elsewhere were permitted; that under those conditions there would be a greater resort to the New York Cotton Exchange by cotton manufacturers desirous of assuring themselves in advance of a supply of cotton for their mill requirements; and that the rendering of the larger stocks of cotton available for delivery upon any and all occasions would have the effect of stabilizing market values and discouraging speculative ventures of a disconcerting kind on the part of persons having no legitimate connection with the production and distribution of the American cotton crop.

Fear of Damage to Main Function of Contract

There has, therefore, been no lack of interest among the members of the New York Cotton Exchange in the proposal that the New York futures contract should be made, so to speak, a country-wide contract, providing that deliveries under its terms are to be made from selected and responsible warehouses anywhere, North or South, but so far the New York Cotton Exchange has not seen its way to take action in this direction. Difficulties have presented themselves, upon a close examination of the project, which have made the members of the Exchange hesitate to attempt the change, lest its efforts produce unperceived and unconsidered results detrimental to the major purpose of the institution, namely, the facilitation of "hedging," or price insurance, operations for the cotton trade not only of the United States but of all the countries in the world that consume American cotton in appreciable quantities.

Some of the Minor Difficulties

These difficulties may perhaps be divided into two categories, those of a minor and those of a major kind, though all of them are very real in the opinion of the more conservative members of the New York Cotton Exchange. Among the minor difficulties the following may be mentioned: First, the necessity of changing the New York Cotton Exchange from a purely intra-state institution, whose contracts are of a wholly intrastate character, and, so in the last resort, subject only to the laws of the State of New York, into an institution whose members would plainly be engaged in an interstate business and whose contracts would consequently be subject to out and out regulation in all their details by Congress itself. The present Charter of the New York Cotton Exchange (a special charter granted by the New York Legislature in 1871) confines the business of the institution to the Port of New York, while at the same time it grants certain important privileges and immunities of a nature to remain valid only within the State of New York. While the members of the Exchange have accepted the provisions of the Federal Cotton Futures Act, in so far as the present terms of the contract are concerned, they look with reluctance upon the complete abandonment of the advantages of their present status as an intrastate institution, and particularly as a New York State institution.

A second disadvantage of the minor class is that there is much obscurity on the subject of the extent to which transactions in the New York Cotton Exchange might be brought within the scope of the varying laws of the different states in which delivery warehouses might be situated. The exceedingly drastic landlord's lien laws of some of the Southern states may be mentioned in this connection, as well as the considerable divergence of practice in the matter of taxation of commodities and goods in stores. Another illustration is the curious law of the State of South Carolina fixing the lawful tare on a bale of cotton at thirty pounds and making it a criminal offense for the buyer of cotton to estimate or allow for the tare on any other basis. It is not clear how ill effects from the operation of some or all of these state laws could be avoided; or how, even if the existing inconveniences of them could be got rid of, the respective legislatures could be prevented from passing others equally as bad unexpectedly and under such conditions as to work much harm either to the buyers or to the sellers of future contracts on the New York Cotton Exchange.

Major Difficulties

And this brings us to the major difficulties in the way of an acceptance by the New York Cotton Exchange of the proposed plan of contract deliveries of cotton from approved warehouses situated in various states in the cotton belt and in the North, however reliable and responsible the management of these warehouses may be. It has been indicated above that the first care of the New York Cotton Exchange must be that an even balance be maintained, insofar as this is possible through human foresight, between the buyers and the sellers of "hedge," or price insurance contracts for the future delivery of cotton. To this end it is of the first importance that all users of the exchange should be put upon the same plane in respect of the calculability of their operations, their opportunities to obtain the latest and fullest possible information, their freedom from exposure to the unexpected and the unprovided for. So long as contract deliveries are possible only out of warehouses in the Port of New York, all this holds good. But can we be sure that it would hold good if, for example, holders of contracts in New York ran the risk of suddenly having tendered to them from a distant warehouse in the South large quantities of cotton which could not be moved to market for a long time by reason of a local freight blockade; or which, being of a particularly undesirable quality, had been quietly collected in such a warehouse by parties whose interest lay in having the relative price of New York contracts depressed?

Similar ill effects might easily arise from the complications of the freight allowances which it would obviously be necessary to establish for cotton delivered at points distant from New York. It is clear that the New York receiver of contract cotton could not justly be required to pay the same price in cash for cotton at a southern point that he would pay for the same cotton already brought to New York; and on this account some system of freight allowances (including probably other charges also) would have to be devised and put into effect. But freight rates, especially those including a rate by water, change frequently and often largely, as well as actually, without notice to the business world at large. It is easily conceivable that a little advance or inside information in this connection might give a very great and quite unwarranted advantage to one or the other party in interest among those dealing in future contracts on the New York Cotton Exchange for perfectly legitimate "hedging" purposes.

It is considerations of this order that have been chiefly responsible for the hesitation of the members of the New York Cotton Exchange about embarking upon the venture of enlarging the possibilities of delivery upon the future contracts of the exchange, so as to include deliveries from properly recognized and bonded warehouses situated outside the Port of New York, and this notwithstanding that probably a majority of the members approve of such deliveries in principle.

Better Trade Relationship

Woolen Trade Develops Means of Co-operation on Vital Problems

By *J. J. Nevins*, Secretary American Association of Woolen and Worsted Manufacturers

PERHAPS the outstanding feature of the year 1919 in the textile market, or, more specifically, the woolen and worsted division thereof, has been the development of points of contact between the different branches of the industry.

To appreciate fully the value and extent of this achievement it is necessary to go back some thirteen or fourteen years to a period ante-dating the organization of the American Association of Woolen and Worsted Manufacturers; back to a time when the thought of co-operation between the different branches of the industry was unheard of and when the absence of cooperation between the members of a given branch was conspicuous.

In those days the theory of competition was the inverse of cooperation. Each man cherished the idea that he had his business carefully folded in his vest pocket and his competitor across the street or around the corner knew nothing at all about it. It is a nice question whether the so-called secrets of the business were ever so successfully guarded as was commonly supposed but the fact remained that those engaged in it thought they were and it was part of the game to avoid too friendly relationships with one's competitors.

Developing Cooperation

One of the cardinal objects of the American Association of Woolen and Worsted Manufacturers, as set forth in its constitution, is "To promote and establish an enlarged and friendly intercourse and relation among its members, their customers and competitors," and one of the first accomplishments of the Association was to develop this idea of friendly cooperation among members.

Having accomplished this, the Association began to consider the development of closer relations with those outside the Association, and naturally cooperation with the National Association of Wool Manufacturers was entered into.

There were certain kinds of activities that were peculiarly the province of the National Association and others peculiar to the American Association, in each of which the one organization supported the other.

Next in line was the wholesale clothing manufacturer. Negotiations were entered into with the National Association of Clothiers, as a result of which the Joint Committee of Woolen and Clothing Manufacturers was organized, made up of fourteen members, seven appointed by the National Association of Clothiers and seven by the American Association of Woolen and Worsted Manufacturers, with a provision that the chairmanship should alternate annually between the presidents of the two associations.

It is not possible here to set down the things that this committee has accomplished equally for makers or sellers and the buyers of cloth. It has served as a point of contact through which the most serious discussion of vital problems has been possible. It has served as a mediator in diputes and has done more to bring the buyer and seller into closer understanding than anything ever attempted in the history of the industry.

Other Joint Committees

With the value of the Joint Committee of Woolen and Clothing Manufacturers so firmly established the directors of the American Association conceived the idea of a similar Joint Committee with the Cloak and Suit Industry.

After very few preliminary negotiations the Joint Committee of Woolen and Cloak, Suit and Skirt Industries was established. It consists of twelve members, three appointed by the Cloak, Suit and Skirt Manufacturers Protective Association, three by the Merchant's Ladies' Garment Association, and six by the American Association of Woolen and Worsted Manufacturers, thus dividing control of the committee equally between the cloth and cloak and suit industries.

There are other branches of the trade, those to whom members of the American Association sell and those from whom they buy raw materials, with whom actual Joint Committees have not been set up, but between whom the closest relations exist.

Mutual Adjustment Bureau

As to those to whom American Association members sell, with whom Joint Committees have not been formed, such as jobbers and tailors to the trade, the Mutual Adjustment Bureau of the Cloth and Garment Trades, to which further reference will be made, establishes a direct point of contact in that both the Jobbers' Association and the Tailors' Association have representatives on the Board of Governors of the Bureau.

There exists no Joint Committee with the spinners, but in so far as the American Association and the National Association of Worsted and Woolen Spinners are both served by the same secretary, the closest possible relations exist between the two Associations.

The Mutual Adjustment Bureau of the Cloth and Garment Trades, established in April, 1919, after several years of study and endeavor on the part of officials of the American Association of Woolen and Worsted Manufacturers, in which throughout they had the hearty cooperation of representatives of allied trades, is of course the culmination of

(*Continued in Regular Section*)

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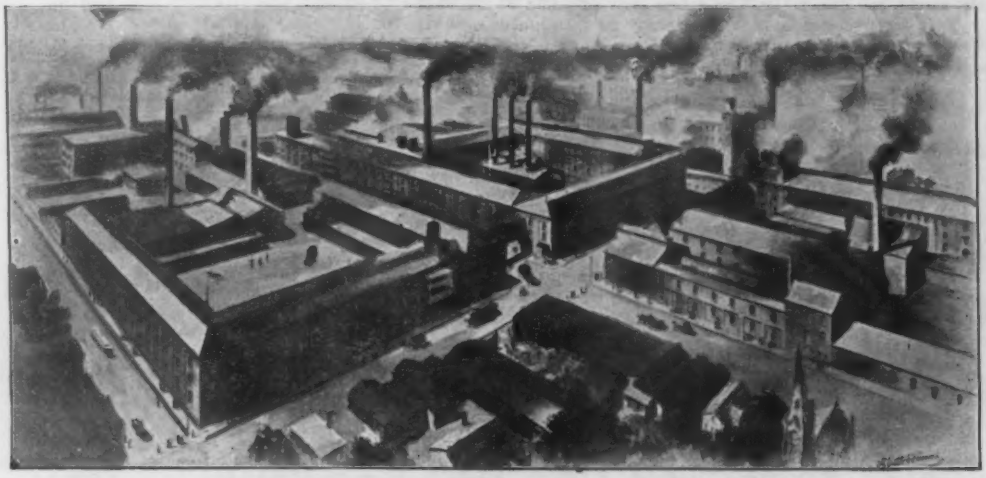

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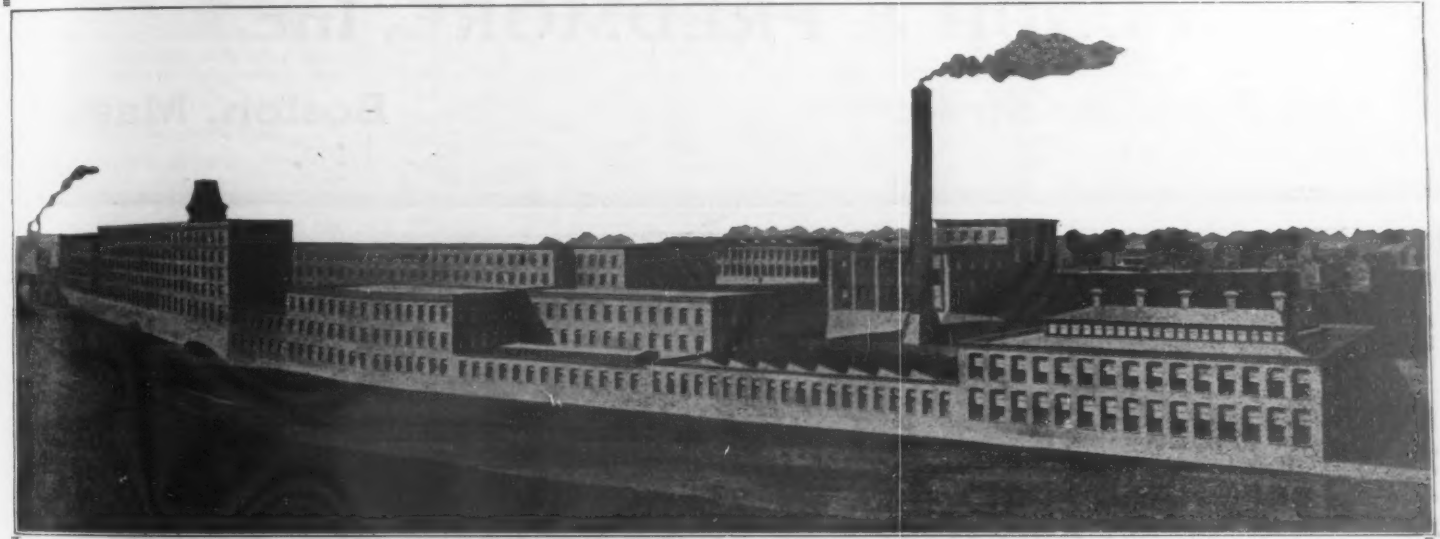

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Demand in Excess of Supply in Worsted Yarns

Abnormal Conditions Resulted from Limited Production

A DEMAND far below the ability of production has been the feature dominating the worsted yarn market during the year 1919. Under such pressure of unusual character, the industry was marked by abnormal conditions, so that it presents an entirely new and varied appearance which baffles any attempt to compare with previous experiences in an effort to anticipate the future. One fact, however, stands out in striking outline throughout the entire year, and that is the complete lack of foresight on the part of the trade at large, in not fully comprehending the real condition of the market in its scanty stocks of supplies of yarns or goods. It was this lack of understanding which resulted in a delay during the early months of the year with its consequent delayed production, which was never replaced at any time. As a result, buyers of yarns, apprehensive of their inability to get the yarns needed to make the goods demanded, were forced to bid prices up on a competitive basis, thus placing prices on extreme levels, as time went on. The end of the year finds the industry sold ahead well beyond the middle of 1920, and yet with many buyers unsatisfied as to their full requirements. What the future holds in the way of further developments, few, after their weird experiences of the past year, will care to predict.

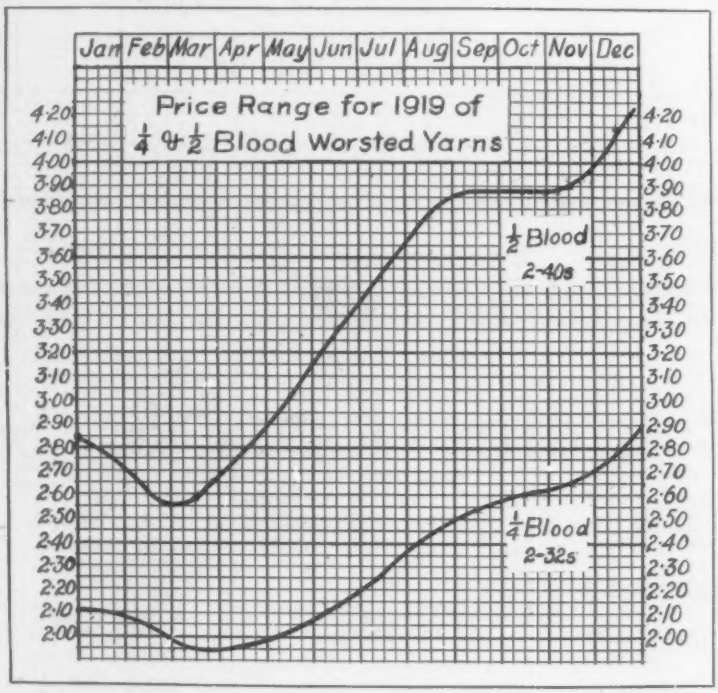
Scattered Trading at Start

The year 1919, therefore, began in a somewhat transitional period. There was only a scattered trading in yarns for staple fabrics, without approaching any real volume. The announcement that upset prices at the Government wool sales would be based upon the English issue prices at least, gave something like a definite basis on which to figure, but even then there was a tendency to play safe. Little interest was shown in yarns out of medium wools, the finer grades receiving more attention. The goods market was slow in developing business, as buyers hoped for lower prices. The situation was also made more complex by the demands of labor for an eight-hour day, and by the disposition of many factors to resist this as impractical and unreasonable. As business lagged, lower prices made their appearance where spinners were anxious to operate, so that 2/40s were offered at $2.50 up, with 2/50s at $2.90 and upward.

During the first few months, from January to March, there was very little doing in the way of selling yarns. Buyers and sellers could not agree upon a proper price basis, and there was still an utter lack of comprehension of the conditions existing in the goods market with the scanty supply of fabrics to meet a demand which had been practically starved during the war. As time went on a realization of the situation apparently began to creep in; the tone of the market improved; there was more confidence felt. The limited holdings of good wools and the curtailed production were beginning to be appreciated. As labor difficulties continued to close many mills, this condition began to make itself felt more widely, so that many were forced to believe the low point of the market had been reached.

The end of March, therefore, revealed a more lively interest in yarns. The demand developed gradually, and with the market short of yarns as a result of the labor difficulties in adjusting themselves to a new basis, prices began to rally, so that 2-40s were noted at $2.65 and $2.75, while 2-50s reached $2.90 and $3.00. The trend of the market to these finer grades of goods and yarns made its appearance early, while the quarter bloods were very quiet indeed. Men's wear mills were using half blood and better, with some three-eighths blood yarns for serges; the dress goods were taking these high grade yarns for French serges and tricotines; and jersey cloth had established itself as a staple. A strike in the French spinning mills in Passaic and Woonsocket forced many buyers to turn to Bradford mills; in April many spinners were sold ahead on these fine counts. It was difficult to place the business which now was offered by manufacturers anxious to cover their yarn requirements in order to meet the demand for goods which also began to make its appearance. Prices began to gain in strength and 2-40s rose to $2.75 and $2.90, and soon $3.00 and even $3.10. They did not stop here, as buyers in their efforts to insure their yarn supplies offered premiums to tempt spinners to book their orders for the earliest possible delivery, or to fit them in with their present orders.

The continued advance in the fine grade yarns caused many factors to rely upon their past experiences in which advancing prices for one grade had turned the attention to a lower price effering. There was, therefore, some effort made in the direction of medium yarns, but in spite of this, the trend continued for the better grade goods. As early as May offerings were indeed limited. Dealers could not place all of the business which was offered them, and production apparently was already far below the demand. The continued drive on the fine counts had necessarily reduced the production in the mills as far as mechanical operation went, and the shorter hours, and the attitude of labor were also making their influence felt in curtailing output. This condition also increased the cost of production by the greater overhead per pound, and 2-40s soon went to $3.20. Many spinners now found themselves sold up until August, so they had little to offer for nearby deliveries. Buyers therefore endeavored to place additional orders to follow present contracts, so as to make sure of their yarn supplies, but sellers were not very anxious to operate so far ahead. The new conditions under which labor was working, the possibilities of still further increased wages and higher prices for wools all tended to induce a conservative policy.



The efforts of buyers to place their orders resulted in a general policy of apportioning the estimated output of the mills running into 1920. Many factors urged a conservative policy as regards prices in an effort to restrain the market from pursuing any speculative tendencies. It was also felt that continued advances in yarn prices would result in such high prices for the goods that buying would be checked, with a consequently serious effect upon business generally. Then, too, this condition would also offer a tempting inducement for foreign producers to invade the markets here, thus again injuring business development. For that reason many planned to sell 2-40s at from $3.75 to $3.90 and 2-50s at $4 to $4.30.

Under these conditions a large volume of business was gradually placed so that by the end of November it was stated that the bulk of the orders had been received for the early part of 1920, running up to June and even July. This business was taken on a basis of $3.85 to $4 for 2-40s, with 2-50s at $4 to $4.25. There were still spinners, however, who had not opened their books to definite orders, but as time went on arrangements were made to allot future production among regular customers so that the close of the year found few offerings still available for the coming year.

Knitting Yarns

Knitting yarns have played rather a larger part in the business of the past year than has been their custom. In fact, it was in this branch of the industry that the use for yarns of quarter blood grade were used. The general conditions of a demand far in excess of the supply were also noted here, while the same waiting policy in the early months of the year tended to increase the shortage of supplies as the year developed through lost production in this period of delayed buying.

Like all other factors, knitters looked for lower prices for yarns at the opening of the year, and consequently for several months played a waiting game, buying from hand to mouth where they had to have yarns. Buyers of goods also pursued the same policy, so that in reality four months' production was lost out of the entire year. With buyers holding off, knitters naturally were not going to anticipate their requirements on yarns, so that the development of activity in this market paralleled that in the weaving end to a greater or less degree.

Demand for Zephyrs

For a long time the demand for zephyr yarns in half blood grades was the leading feature for fancy lines. Here a 2-18s sold at $2.60. As this demand continued, the steadily mounting prices caused users to endeavor to substitute the three-eighths blood because of the cheaper price. At the same time, however, the sweater manufacturers shortly began to take more interest as orders for goods came in. Prices began to advance, so that 2-20s in quarter blood reached $1.85 and $1.90, and eventually $2 by the middle of the year. At this time it became evident that buyers of sweaters had overstayed their market, and by fall, when knitters endeavored to place orders, they found spinners already fixed with orders.

The efforts of buyers to secure yarns soon caused prices to reach a premium position. Price was apparently no object so long as the yarns could be bought and the orders for goods covered. In September, 2-30s quarter blood could be secured at $2.40 up to $2.65 for high grade stock, but these prices were soon passed, and November found buyers offering to pay $2.75 to $3. Even this did not prove the maximum, as before the year closed reports of offers as high as $3.25 were heard, with sales made at $3 and $3.15. Many spinners declined to sell ahead beyond April and eventually June, and this conservative policy was anything but satisfactory to the knitters, who were being offered orders for goods, against which they desired to protect themselves by yarn contracts. Here again the year finds the market bare of surplus stocks, so that every confidence is expressed in the future, even on an extremely high basis. Sober second thought causes many to wonder, "What will the harvest be?"

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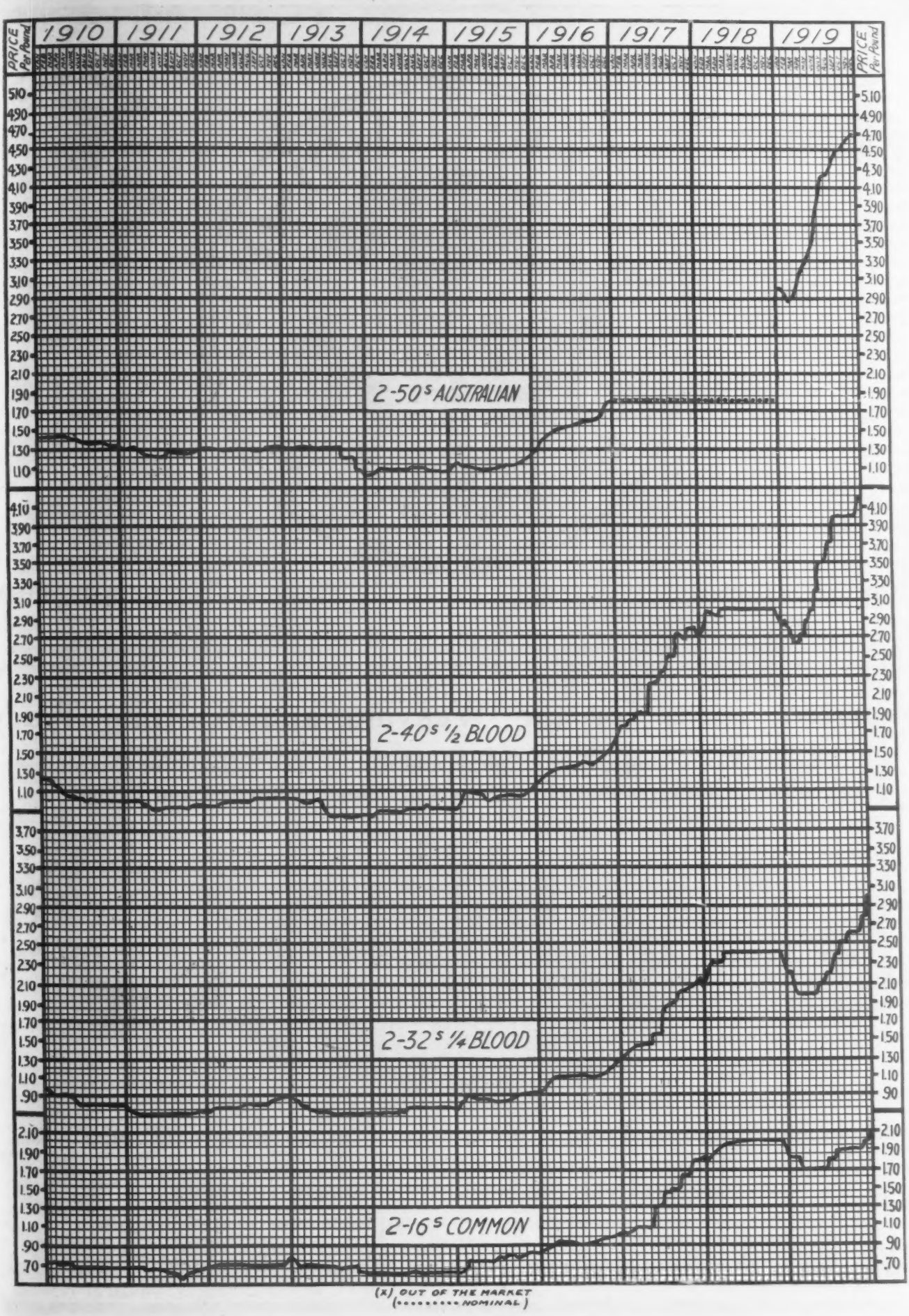
1910
1911
1912
1913
1914
1915
1916
1917
1918
1919
PRICE Per Pound
2-50s AUSTRALIAN
2-40s ½ BLOOD
2-32s ¼ BLOOD
2-16s COMMON
(x) OUT OF THE MARKET
(.....) NOMINAL

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Fine Tops and Noils Advance Strongly

Have Followed Wool Market Closely—Quarter Blood Tops, But Not Noils, Lag Behind

TOPS and noils during the year have moved generally in unison with the raw wool market, which after some hesitation in the first two months of the year, owing to general textile uncertainty then prevailing, commenced to strengthen, closing the year at highest prices. Fine tops end the year at about 20 per cent. advance, while quarter blood tops, in accordance with neglect of this type of wool, are only 3 per cent. higher than January quotations, though from the low point of the year they show an advance of 10 per cent. Fine noils end the year with a 23 per cent. advance, and quarter blood noils, contrary to average opinion, are 25 per cent. higher, commencing the year at 60c. and ending it at 75c. The reason for this sustained strength in quarter blood noils is probably found in their relative scarcity, they being by-products of quarter blood tops, demand for which throughout the year was limited.

About the middle of March the market began to show more life. A fairly good business was done in fine, half blood and three-eighths blood tops and the mills sending in orders were willing to pay a little better for newly made standard materials than for tops purchasable at Government auctions. The top market had opened the year with high prices for all kinds of tops, prices based upon Government issue figures, $2.25 being quoted for fine tops and $1.50 for quarter blood tops. But during the depression, when the mills of the country having completed Government contracts were almost entirely lacking in civilian orders, fine tops were quoted at $2.05 and quarter bloods at $1.40.

In September the market became much broader and stronger, more interest being shown in all grades, though comparatively less so in low varieties. Some fairly good sized orders were placed about this time for 40s, 44s and 46s South Americans. These orders were taken on at shaded prices and were made from wools owned by the combing houses and were a very welcome development inasmuch as they allowed for the utilization of combs unfitted for fine work. Top makers became much busier and the momentum gathered at this period continued right through the year, resulting in a practical congestion in top-making establishments, who, owing to labor, coal and other troubles, began to fall seriously behind in deliveries.

At the beginning of December the top market had again broadened but low tops were rather easy in price. The demand for fine and half blood tops was very urgent and while certain fine tops could be purchased on the Street under standard quotations they were commodities put up by houses not ordinarily in the top business and so, on the whole, did not measure up to exacting mill requirement. Prevailing quotations at this period were as follows: Fine tops, $2.70-80; half blood, $2.60-75; high three-eighths, $1.90-$2; low three-eighths, $1.65-70; high quarters, $1.50-35; 46s, $1.22-27; 44s, 95c. to $1; 40s, 85-90c. Low quarter blood O. D. tops were quoted at 85c.

Toward the end of the year the top market became very firm, the continued insistence upon fine materials raising prices 2 or 3c. a pound. Commission top makers were taking on very little new business, having orders on their books to keep them occupied for several months. There had been some recent buying at the wool auctions of 58-60s Puntas and Montevideos for the purpose of utilizing in part in the production of half blood tops. These wools were selling on a clean basis of around $1.45-$1.50. Australian 66-70s made from recently purchased wools were now available in small quantities around $3 per pound. At the close of the year the top market became much quieter, the usual taking of inventories and other year-end operations bringing trading to a comparative standstill. Professional top making establishments were operating only to a limited degree on Australian fine wools. These wools from the top-maker's standpoint had gone completely beyond their price limits and were being processed only by mills who did their own combing and spinning, carrying the same forward into fabrics.

Noils Open 1919 Easy

The noil market opened the year inactive and weak, the weakness being caused, in part, by dealers selling in order to establish paper losses in making up for Government taxes their profit and loss account for the year. Noils at this time were selling below British prices for similar varieties, and a slight upward movement took place which brought fine noils up to 95c.-$1, according to quality of parcel. Three-eighths blood noils were selling at 70c. and were being bought for export. Clear fine and half blood noils were not very plentiful and many of the noils made from recently acquired Australians were quite defective. The noil market was following the top market very closely these days and shared in the general industrial uncertainty that prevailed throughout the country for the first two months of the year. A small demand for carbonized noils sprang up, and as attention was becoming centered upon fine materials, specialty noils like camel's hair and cashmere began to gain a little more attention. Recombed fine noils found a ready market at $1.25; carbonized noils, though selling below their intrinsic value, remained soft.

The noil market throughout the entire year has lagged behind tops, the demand for the latter gaining increasing impetus as the months went along, while the consumption of noils throughout the whole year was very spotty. Early in September the noil market was quite easy. English fine noils were being offered here at what seemed the remarkably low figure of 90c. landed. These noils, however, contained more moisture and were less clear than the domestic variety, which was selling at this time from $1 to $1.10. Dealers reported noil stocks as not very large and hoped that an increased demand would come along to lift prices.

In October noil prices showed considerable divergence and had a temporary spurt, fine noils selling up to $1.12, half bloods to $1, with three-eighths bloods ranging from 88 to 95c.; quarter bloods, 65 to 72c., and low quarters 55 to 60c.

Great Expansion in Raw Silk

Short Crop of Cocoons Complicates General Advances—Labor Difficulties

THE raw silk market throughout the year 1919 was shaped by conditions peculiar to a period of rapid manufacturing expansion, while at the same time there was a shortage in the world's crop. The shortage of raw silk was a thing quite to be expected at the close of the war, as the growers were handicapped by the uncertainties of that period. After a short weak term in the fore part of the year, the world's silk markets took on a strong tone and made an almost steady advance to the year's end. At times doubts of the stability of the general rise were entertained, and as periods of activity alternated with inactivity, but from April onward business expanded steadily and the price situation moved along up with the volume of demand for fabrics.

Importers and manufacturers who summoned the courage to invest in Japanese raw silks the early part of the year and stayed with the market on the ride upward are pleased with the large and profitable business returned for the year. In January the domestic market was merely trailing along in the dullness and uncertainty that attend the slump after the armistice. Mill stocks were not very large, but manufacturers were inclined to keep close to requirements in their buying, so that the atmosphere of the market the year long has been one of holding back, for the end of an unprecedented rise was not in sight with the coming of 1920.

Enormous Rise in Prices

Naturally the price situation provides the main features, and because it went high by leaps and bounds, the results were almost stupefying. To get the situation accurately and in a nutshell, it is necessary to recall the downward sweep in the Yokohama market immediately following the armistice when commodity values were most erratic. The low point of 1918 was reached on December 7, at 1,450 yen for Sinshui No. 1, but the year's close found a stiffening on new demands from American buyers at around 1,520 yen. After the New Year's holidays Kansai No. 1 was quoted at 1,500 yen and Sinshui No. 1 at 1,480 yen. The extremes to which the market went in the next 359 days is simply indicated in the fact that on December 31 the cables here quoted Sinshui No. 1 at 3,430 yen, or more than 130 per cent. advance. And yet a new low was recorded in February when the labor outlook in America took its first gloomy turn, and Sinshui No. 1 then recorded a secession to 1,300 yen.

Domestic Market Responsive

The domestic market sagged at the same time and Sinshui No. 1, which was selling on January 1, 1919, at $6.65 a pound, and at firm prices up to the middle of the month, receded about 60 cents. At the lowered level buying increased, however, and by April the later steady upward movement set in. Roughly the extremes of the year are dramatically shown by the advancement of the leading grades from $6 and $7 a pound, at the low point, to $14 to $15 a pound at the close of the year. China and Italian silks, although actuated by other special conditions, participated in the big rise. Prices were quoted in the more important grades at the end of the year as follows:

Filature Kansai Double Extra Cracks	$14.65
Filature Kansai Extra 13/15	14.45
Filature Best No. 1 Extra 13/15	14.35
Filature Best No. 1	14.30
Filature Kansai No. 1 13/15	14.25
Filature Sinshui No. 1 13/15	14.20

6 months' basis.

CHINA.

Canton XXA, Crack, 14/16	10.40
Canton XXB, Crack, 14/16	10.00
Canton XXB, 22/26	9.50

ITALIAN.

Extra Classicals	14.00
Best Classicals	13.50

Late Autumn Break

Early in December a break in the Yokohama market furnished the last important setback to the steady upward course of prices. This has been ascribed, with a degree of extreme probability, to the second critical manufacturing situation of the year in the United States, the time when the Government, in dealing with the strike of coal miners, issued fuel saving restrictions threatening to cut down the operation of mills to three days a week. After the crisis had passed the full effect of the shortage of raw silk in the presence of a widening manufacturing demand, asserted itself and the market proceeded upward again to new heights. The domestic market followed the turns of speculative conditions in Japan and China, in the main, and while affected mostly by its own conditions, was at the mercy also of the local conditions in the silk-growing countries. For instance, when Japan took a fling at its own problems of high costs of living, which happened to be almost coincident with the acute fuel situation in the United States, the Japanese silk market reflected its local depressive influences. In the prompt renewal of American buying then, however, a temporary benefit, at least, was enjoyed by those who operated at that time.

Eagerness in Competitive Countries

It is said that, in the foreign markets, whenever the American buyers were inclined to desist, European buyers kept on buying. This is explained, in part, by the fact that Germany and Austria resumed operations with swift strides and missed no opportunity to replenish their depleted supplies. European consumption increased steadily through the year, and the needs of raw material were far more insistent than those of the United States. Keen competition, limited supply and enormous demand would have run up the price of raw silk immeasurably had there not been so many other extraordinary elements present in the home and the world situations. The home consumption in Japan itself has been on the increase, with the introduction of high speed power looms, thus absorbing large quantities of low-grade raws that in other years went to other countries. An authority estimates that the 1919 world's crop fell 1,000,000 kilos short of the previous year, and under the circumstances an immediate change in the direction of depreciation is altogether unlikely. With preliminaries out of the way, and the manufacturing world settling down to its task of productive-

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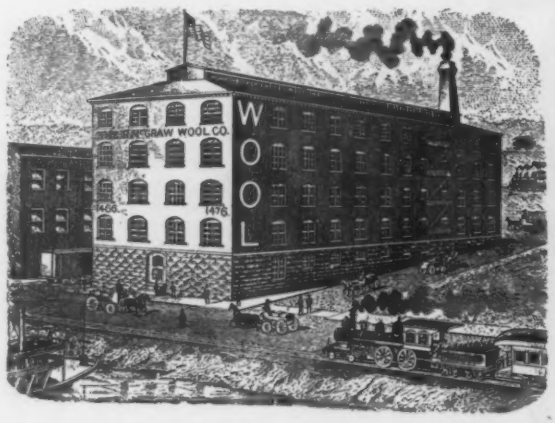

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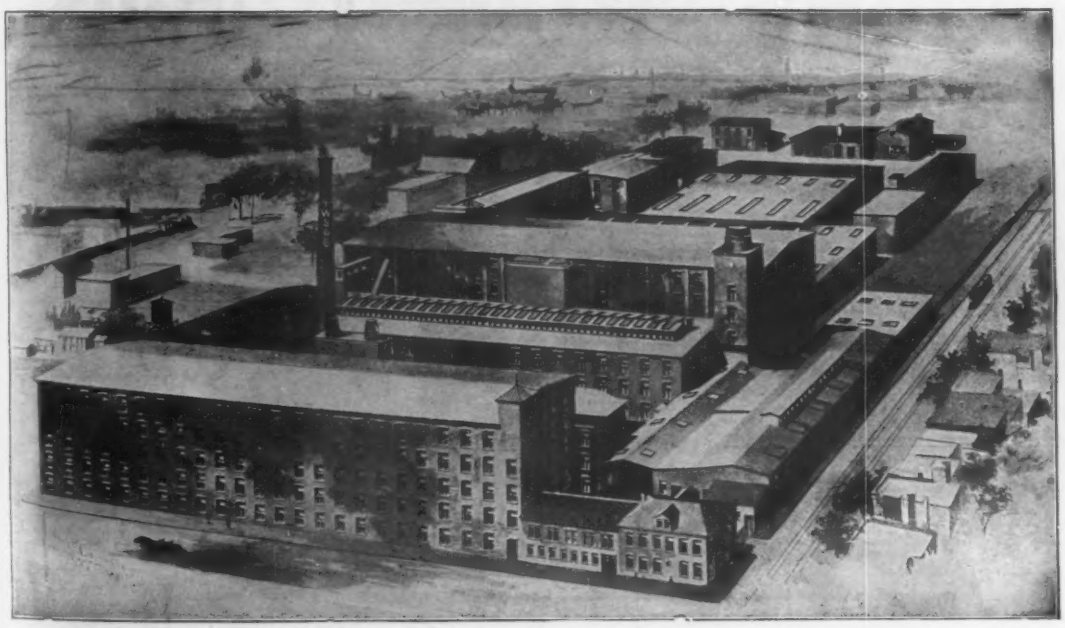

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Either French or Bradford System

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Weaving and Knitting Yarns

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Capacity 15000 Pounds Weekly

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ORGANZINE, TRAM AND HOSIERY SILKS

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For the Knitting Trade Only

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In Fabric Design *Life—Character—Snap* Are Much Sought

Other things being equal, it is a stroke of genius in design and color blending—something that gives life, character and snap to the fabric—that determines which fabrics 90 per cent. of buyers will take.

We are neither designers nor geniuses, but we are *Spinners of Alpaca, Mohair* and *Worsted Yarns* in *Fancy Mixtures, Colors* and *Twists* and in the *Gray*.

We can be of considerable aid to you in suggesting color effect, and in producing just the right shade, mixture or twist needed to brighten and give character to your line of men's wear or dress goods.

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DYERS and FINISHERS

OF MENSWEAR AND DRESS GOODS

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Can Handle Fabrics Up to 80″ Wide
Dyers and Finishers of Woolen and Worsted Fabrics, Woven or Knitted
Men's Wear and Dress Goods, Serges, Cheviots, Suitings, Cloakings, Overcoatings, Boucles, Astrakhans, Kerseys, Jersey Cloths and General Knitting Frame Products

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In Top Dyeing—

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We invite comparisons of Hough-Dyed Top with others on *all* of the above bases.

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We shall be pleased to receive your inquiries.

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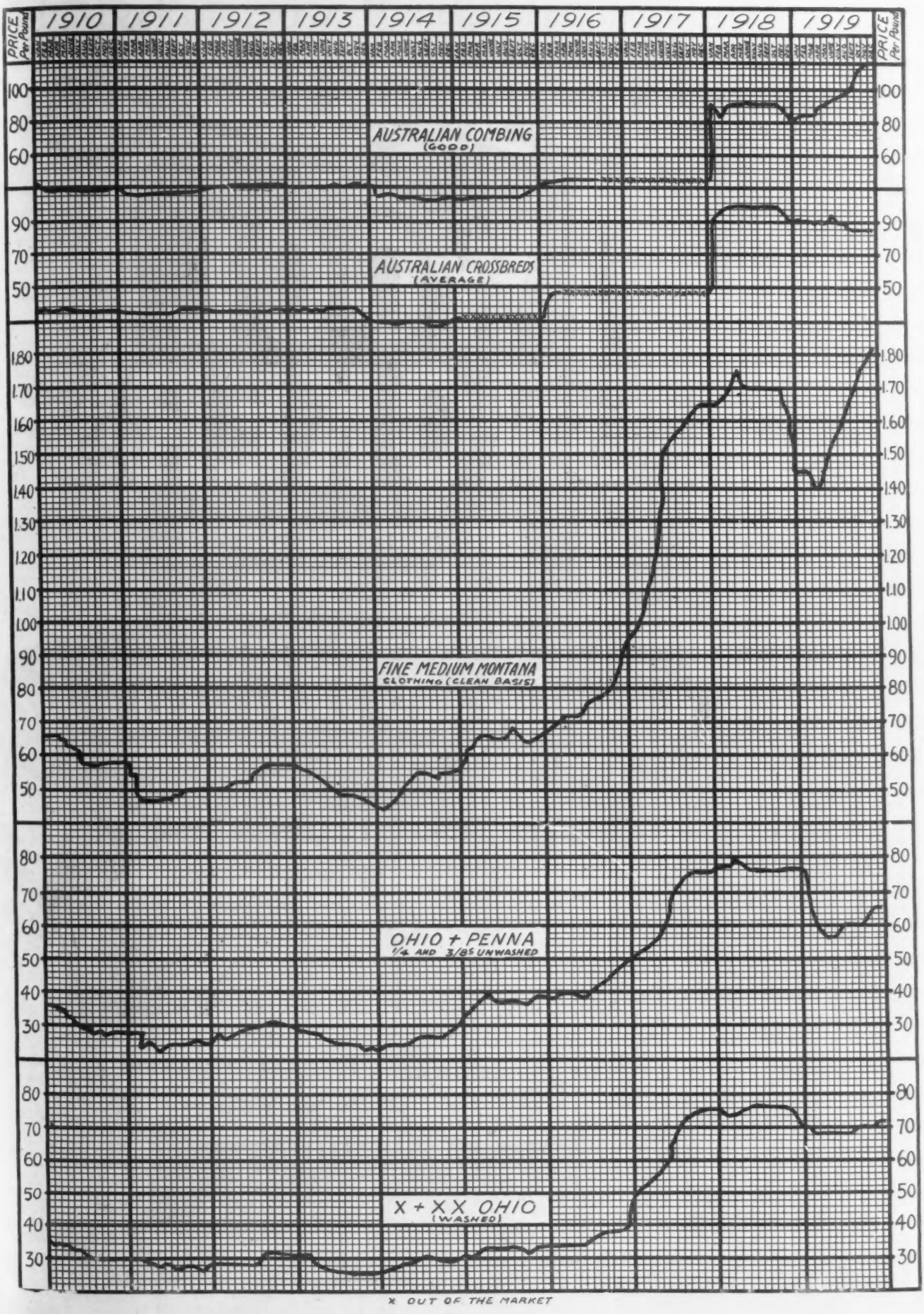
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1919
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FINE MEDIUM MONTANA CLOTHING (CLEAN BASIS)
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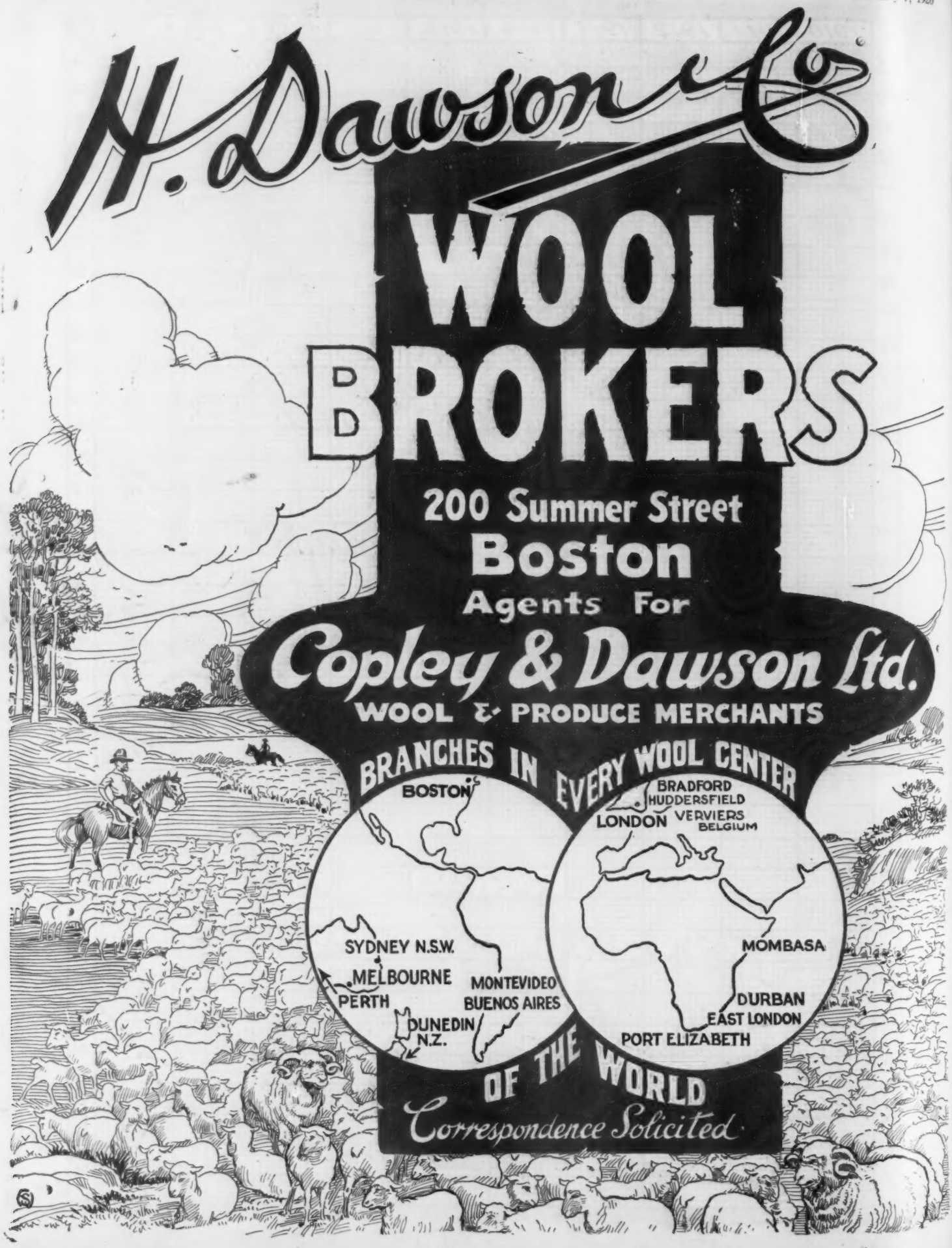
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Wool Market Now Readjusted to Peace Footing

Unprecedented Conditions Successfully Met —Confident Future Outlook Entertained

THE year opened with Government selling its surplus wools and its ending finds the Government still engaged in the operation with a surplus of around 100,000,000 pounds, chiefly low grade and inferior wools. Sales will continue for the next six months and will find the Government with a considerable quantity of un-bid-for wool on its hands. Sales of wool for British account open in Ford Hall January 21 and so far as it can be seen will cover a period of months. There are 60,000 bales of British owned wool in the city at time of writing; only one-third of this is being offered in January and a further consignment of 50,000 bales is expected here in February.

The chief feature of the year has been the continual price rise in delaines and fine staple wools; quarter and three-eighths blood have had a slight rise; but, whereas. fine wools are selling above old Government issue prices the medium wools are below. The wool trade generally opened the year short of wool and long of cash; they closed the year with plenty of wool of the medium grades and no scarcity of cash.

At the beginning of the year the wool trade was still under partial Government control, but restrictions were speedily removed and the market is now on its pre-war basis. The Government continued to sell its surplus wool stocks up to July 1 and then in order to allow the marketing of the domestic clip without competition discontinued auctions to resume November 1.

Remarkable Switch in Wools

The one remarkable and altogether unexpected development has been the complete change in the character of the wool demand. For the year 1918 there was an average monthly consumption of 9,000,000 pounds of fine foreign and domestic combing and clothing wools; for the year 1919 this had risen to 13,000,000 pounds monthly. In 1918 the average monthly consumption of foreign and domestic quarter blood combing and clothing wools was 8,000,000 grease pounds; in the year just closed this had fallen to an average monthly consumption of 5,000,000 pounds.

The high point in monthly consumption for both wools in 1918 was in March when 12,000,000 pounds of fine wools and 11,000,000 pounds of quarter bloods were consumed. The low point of this movement was reached in February, 1919, when fine wool consumption fell to 6,000,000 pounds and quarter bloods to 3,000,000 pounds. High consumption point for year just closed was in October, when the mills used 18,000,000 pounds of fine wools and 8,000,000 pounds of quarter bloods. Combining the monthly consumption of fine and quarter blood we get an average monthly consumption of 17,000,000 pounds for 1918 and 18,000,000 pounds for 1919.

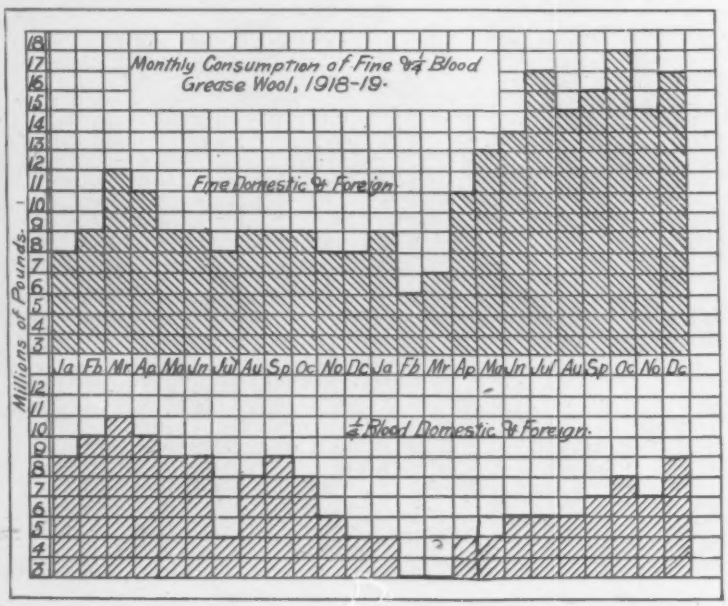
The amount of wool consumed is substantially the same for both years, but its character is greatly changed. Taking the figures as given, it will be seen that the consumption of fine combing and clothing wools in 1918 was approximately 108,000,000 pounds, while in 1919 this figure had risen to 156,000,000 pounds, an increase of 41 per cent. Consumption of quarter blood combing and clothing wools in 1918 was 96,000,000 pounds, the consumption falling to 60,000,000 pounds in 1919, a decrease of 37 per cent.

January opened with the wool market awaiting Government sale. The auction method of selling was regarded as experimental only and unlikely to construct a stable basis for wools. To what extent Government sales were going to satisfy the needs of the textile industry and bring the immense wool stocks owned by the Government to a par with the stable wool prices of the world was a problem. The whole proposition was looked upon as an experiment in dealing with new and unprecedented conditions. The Quartermaster's Department was no more anxious to continue in the wool business than the wool interests were to have it there, and was planning to make an orderly retreat out of a business acquired under conditions that all hoped would never again be repeated.

The wool market was busy changing gears. More optimistic feeling was spreading. Summer street, however, was only one factor in the complex situation. Sentiment was veering round to the conviction that New York clothiers held the key to the situation as being interpreters of what they considered to be the public needs and necessities; and that until they were ready to place orders with the mills little further could be done in the readjustment of the wool industry upon a peace foundation. Opinion was held in some quarters that the clothiers might get a severe jolt in the near future when they realized that the trade was here and they could not get the goods from the mills. Waiting for low wool prices might prove a misleading if not disastrous policy. Wool administration officials contended that wools bought at the recent auctions were as low as they could be procured anywhere; that, as a matter of fact, the Government was assuming large losses; that wools sold even at July 30 prices were sold at a loss to the Government and that it was not the policy of the administration, in gradually getting out of the wool business, to break wool prices.

Foreign Import Restrictions Removed

The announcement by the War Trade Board that all restrictions on the importation of foreign wools would be removed Jan. 10, had been anticipated by the trade and had little effect on prices, being regarded merely as an incident in the relinquishment of wool control. That buying would start in the Cape and South American markets was not regarded as likely owing to the fact that shipping facilities were very limited and freights high and the improbability that wools could be bought in either market at prices that would bring them in lower than figures made at recent Government sales.


Monthly Consumption of Fine & ¼ Blood Grease Wool, 1918-19.
Fine Domestic & Foreign.
¼ Blood Domestic & Foreign.
Millions of Pounds.
Ja Fb Mr Ap Ma Jn Jul Au Sp Oc No Dc Ja Fb Mr Ap Ma Jn Jul Au Sp Oc No Dc

The feature of the wool market at this time was the publication by the Boston Wool Trade Association of British issue prices to be used as the basis of Government wool sales.

British Prices Guide Buyers

A committee of seven headed by the president of the association met in a series of conferences with the officials of the wool, tops and yarn branch and were given every facility by the administration to examine the official British catalogue "of issue prices on wool for civilian purposes," and thus to verify, in order to establish confidence, the contention of Government officials that withdrawal prices at previous wool sales were at or near British figures for similar wools. There had been a great deal of misunderstanding as to what British issue prices meant and not a few had been under the impression that the British Government allotted wool to Government contractors at one price and to civilian manufacturers at another and higher figure. There was, however, but one issue price for any particular grade of wool. This figure in the case of Australians, which furnish a specific and definite illustration, was 30 per cent. higher than the cost of any given grade. The manufacturer, whether on Government or civilian goods, paid one and the same price, but the purchase department of the British Government refunded to the Quartermaster's Department the 30 per cent. placed upon the price of the wool, which enabled military authorities, so far as cost of raw materials was concerned, to get their goods at lowest possible figures.

Recent auctions strengthened confidence among consumers, but wool trade proper remained inactive. The recent Government wool sales had nevertheless imparted a firmer feeling to the wool trade, and there was a larger measure of confidence shown both by dealers and manufacturers. The publication by the Boston Wool Trade Association of the British issue prices as a guide to buyers was of great value to prospective purchasers introducing a spirit of frankness and co-operation into the auctions previously lacking. The first day's January sale opened with considerable vigor, the first one hundred lots being disposed of in forty minutes with only four lots withdrawn. Australian fleece 70's sold at $1.46 and shafty top making wool at $1.38. Cape wools were not in demand. South American 44-40s sold at 82 cents, right at the minimum, which coincided with British issue figure. Buying broadened considerably at the second day's sales extending to all grades, but purchasing was conducted very skillfully at prices ranging not higher than 4 per cent. above minimum, excepting in one or two choice lots of Ohio delaine. Choice half blood staple Montana sold at $1.40 and quarter blood staple at $1.06. At the third day's sale bidding was good, but very discriminating.

Early in February the War Department announced that it would continue to sell at public auction such wools as manufacturers might require with a minimum reserve price, the equivalent of the British civil issue price. This basis of the British civil issue price would be maintained as the minimum reserve price until July 1, 1919 and would be resumed November 1. There was a general belief, that July 1 would find the Government still in possession of a large quantity of second class wools estimated at 120,000,000 pounds or even more and that this accumulation will overhang the market as a depressive influence. The wool market continued somewhat somnolent. Its activities were largely confined to clearing up odds and ends and getting its wools valued and approved for acceptance by wool administration. All this automatically came to an end March 1. Rumor had it that the Government had already placed its best apples on the top of the barrel and that from now on classes of wool shown would become less and less desirable, viewed from present manufacturing requirements.

The Cape was now a free market. All embargoes had been lifted. The shipping situation was clearing and exports on the increase. British stocks of wool had been heavily depleted, but beginning in March it was expected that from 70,000,000 to 80,000,000 pounds monthly would be taken in.

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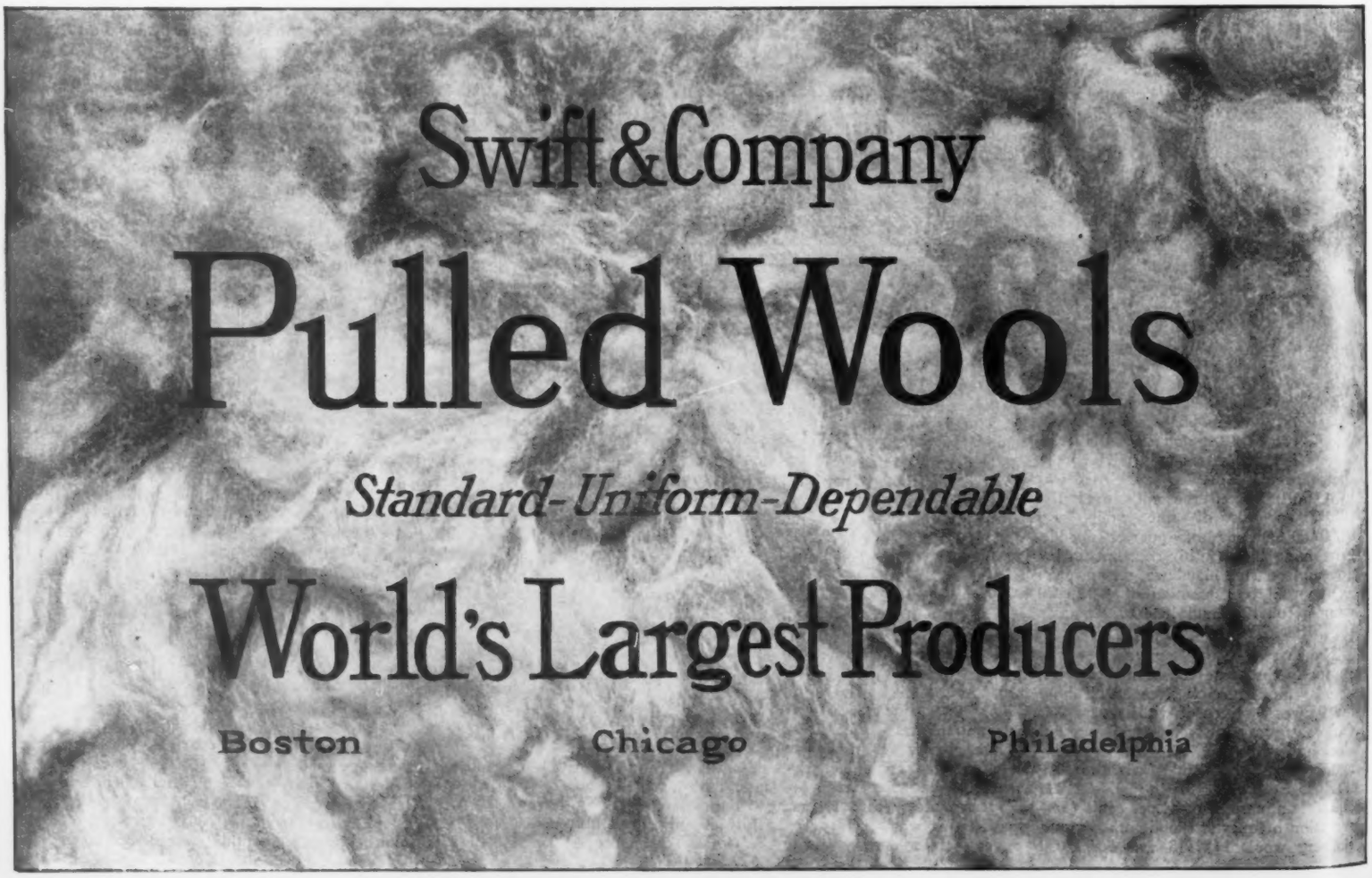


South American imports were still under English embargo. The objection to free trading came from the Treasury Department. England wanted to retain her gold and to pay in credits. As between Great Britain and her colonies things were different. Both Great Britain and the United States were in the same condition as regards South America; their exchange had depreciated to a marked degree, ours at this time was 5 per cent. below par.

Worsted Men Buy Best Wools

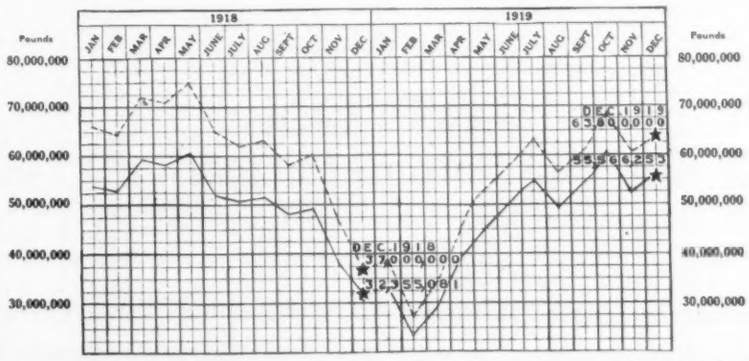
Recent Government sales ended in a very surprising and gratifying manner. Withdrawals at first day's sale approximated 55 per cent., second day's sales 30 per cent., third day's sales 7 per cent. A distinction between woolen and worsted buying was very clear and was, in part, the explanation of the change in front. Worsted men were in the field for the best wools and would not take second class wools at upset prices now maintained. Woolen men bought fine and fine medium clothing wools quite heavily and cleared up at strong prices the pulled and scoured wool offerings.

Government reports on wool stocks as of December 31, 1918, gave total of grease, scoured, and pulled wool in the United States at approximately 460,000,000 pounds. Government wools, spot, in transit and yet to be billed account for 384,000,000 pounds of this total, leaving 76,000,000 pounds of free wool in the hands of dealers and manufacturers. January 1 some 70,000,000 pounds was in dealers' hands for passing over to the Government, but a large part of this had now been valued, approved, and billed. By the end of February such Government wools were almost entirely out of dealers' hands. During January and February the administration offered in Boston approximately 70,000,000 pounds, and of this amount sold approximately 50,000,000 pounds; leaving an approximate balance March 1 of about 330,000,000 pounds of wool. If offerings and sales continue on same plan, and with similar measure of success, July will find the administration with unsold wool stocks of approximately 200,000,000 pounds.

A statement by the British director of raw materials made it clear that whatever troubles there might be in store for the wool textile industry, shortage of raw material would not be one of them. It was estimated that receipts of 90,000,000 pounds monthly for the next six months would take care of British manufacturers and allow for needed allotments to France, Belgium and Italy. Auctions of Australian wools would probably commence April 8 and about 30,000,000 pounds would be offered. Wools other than Australasians would be continued to be issued at prices now established.

Wool Warehouses Full in March

The feature of the wool market early in March was the concern felt in some quarters regarding warehouse congestion and the possibility that cities like St. Louis, Philadelphia and Chicago might use their superior facilities as a lever to pry away business from Boston when the new clip comes in. Warehouses in this vicinity were chock full and indications were that there would be at least 200,000,000 pounds of Government wool stored in this vicinity at a time when consignments normally, came along. Arizona wools were now being shorn and several carloads already on their way. There was nothing very clear in the situation. Advances were made on a safe basis, and as the bulk of this wool is handled by a couple of houses on the Street, no great amount of interest was manifested. Recent Government sales achieved a fair measure of success. There was no impetuous buying. Everything was moderate and orderly except in a few cases where urgent demand, as in the case of Ohio quarter bloods, put prices high above minimum. Apart from this outburst, prices were on a level of recent sales rising 4 to 5 per cent. above withdrawal figures. The carded woolen men showed the most animation and were good, though cautious, buyers throughout the sales. The complete relinquishment of Government control of the wool industry had now left the wool trade a potential competitor with the Government. Underlying all secondary questions a fundamental principle of action for the wool trade came to the front, expressed concretely in the words of a Summer Street dealer: "We must get our wool at prices that will undersell the Government." The issue thus became clearly defined. The Wool Administration staff was slowly undergoing disintegration. One by one prominent men of the Street were returning to their old-time organizations. It would have been a great relief to not a few if deorganization could be accomplished over night.



CONSUMPTION OF WOOL IN UNITED STATES MONTH BY MONTH SINCE JANUARY 1, 1918
Charted by Merchants National Bank, Boston

The higher curve (broken line) is based on monthly totals arrived at by adding the estimated grease weight of the scoured and pulled wool that was consumed to the grease wool consumed. The lower curve (solid line) is based on monthly totals reported by the Department of Agriculture, which simply adds the scoured and pulled wool to the grease wool without converting the former into grease wool.

The relation of foreign wool markets to Government holdings and forthcoming clip continued to be of paramount interest in the market. So far as the Cape market was concerned wools could be brought here and sold, at say, from 7 to 10c. per pound below Government upset figures. While the Montevideo market was strong and combing wools not unobtainable in any quantity, the B. A. market, held up by a long continued strike, had a considerable accumulation of wools and it was understood that American buyers could bring in wools at prices that would compete successfully with Government offerings. Regarding the 300,000 bales of Australians contracted for by our Government it was said that a third of this amount was en route, or here, and that the balance was to be held up pending further arrangements between the two Governments.

Government Wools Chief Supply

As Government auctions at this period constituted the chief supply of wool, several Summer Street houses bought wool quite freely, and were thus enabled to accommodate their smaller clients with the grades they required. This was not speculation, but strictly legitimate business. The smaller mills could not very well buy at the auctions where the lots were, on the average, quite large, and where quick payment was demanded. But under free trading, now resumed, the mills got their wants supplied by houses in which they had confidence, and were not required to pay before sixty days had elapsed. The whole situation became more healthy and normal. Whatever views were held regarding the real trend of wool values wool buyers were ready to acquire the wool they wanted on a rising market. At previous sale Australian wools came back with a rush and in choice lots figures came very near old Government issue prices.

The action of the wool administration in lowering minimums, was based upon British reduction of issue prices to their manufacturers. The British reduction of 7½ per cent. below prevailing issue prices, taking effect April 1, was not of a blanket character covering all wools but an average figure, reductions ranging from 5 per cent. in merinos to 12 per cent. in crossbreds.

More wool houses were now doing a little business with old customers. Houses with men in the West instructed them to talk lower prices to growers, especially in medium wools. This action was taken as a direct result of Government lowering of minimums, and was supported, naturally, by slow demand at recent auctions for these wools and a marked fall in prices. Argentine conditions continued disturbing, but affairs were much more stable in Uruguay. Montevideo wools were offered in this market by one or two prominent houses as follows: Montevideo wools in round lots 67-68c.; 3s, with a 73 per cent. yield, 66c.; 58-60s, with 58 per cent. yield 73c.; 1s and 2s in mixed lots 70c., the 1s yielding 62 per cent. and the 2s 67 per cent. all c. and f. Boston.

Medium Wools Neglected

In April the market was digesting the heavy recent Government sales The auctions were featured by st ; demand and high prices for medium to fine wools and low prices and general neglect of wools ranging from medium to low. South American wools hung like a club over the market. Comparatively very little of the B. A. clip had been shipped, and the call for 3s, 4s and 5s was very limited. This fact was exemplified by the neglect shown these wools throughout the whole series of sales. Conditions in Argentina were greatly disturbed, although the strike was supposed to be settled and the port nationalized. Houses on the Street dealing in these and other South Americans were making few offerings. Good Punta Arenas were reported fairly well cleaned up, Concordia wools not plentiful, and Montevideo superfine crossbreds practically exhausted.

Shearing was under way in some territory sections—South Wyoming, Arizona and sections of Washington. Representatives of local houses were preparing to go West, though it was not expected that any great bulk of wool would arrive here prior to cessation of Government sales July 1. Recent Arizona wools brought here were valued at 60c. to 62c. New wools were said to be of very good quality. Consignment, it was thought, would be the general method pursued by local wool houses and a 6 per cent. interest rate on advances seemed likely.

Bullish Sentiment Strengthens

Bullish sentiment was now quite strong on Summer Street and likely to dominate the situation for some time to come. The market was very strong on wools wanted and there seemed little chance for the procuring of cheap wools. The strongest prices of the year were now being paid at Government auctions for fine Australians and delaines. The chief bullish influence in this market was the urgent desire of manufacturers to secure desirable wools to cover cloth contracts. This led to competitive bidding up of fine and half-blood wools, staple and clothing, domestic and foreign, to levels that seemed almost impossible a few weeks earlier. The wool trade very generally was long of cash and short of wool, and under such circumstances the only thing to do was to buy a little wool, here and there, to keep in business. Wools were beginning to come in from Idaho, Utah and Arizona. Reports indicated that the Fairfield clip had been bought by a house here for 40c. and a large purchase of 500,000 pounds of Utah wool at 45c. was made by another well known Summer Street house.

Public Demand Fine Fabrics

Summer Street at this time was quite busy attending wool auctions and, on the side, making preparations to support, as they had well done on other occasions, the flotation of the final Victory Loan. The wool industry generally had now gained considerable momentum The general public was in the market for fine goods and as they had the money to pay for them, and as the western part of the country was now assured good prices for its wool and wheat, there seemed nothing in sight, according to good judges, to bring about a decline in prices. The world-wide sentiment in favor of the protection of labor was considered a bull factor on prices and while there were large wool stocks scattered around the world, shipping and other conditions were of such a character as to render them inoperative as a factor in lowering values. So far as the great Australian wool supply was concerned, shipments of grain would take precedence and the same was largely true regarding South America in its relations to Great Britain and Continental Europe.

Navy Sells Australians

Sale of Australian wools held by the Navy Department took place early in May. The wools had been carefully examined and the avidity with which they were taken up by a large number of buyers present was indication of the

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distinct turn in the tide which had come to the wool industry generally. Two lots of wool, choice 70s spinners F. or N. F., sold at a record price of $2.06 clean basis. Large quantities of 70s spinners average were sold at $1.72 to $1.74; 64s-70s good weft sold at $1.69 to $1.71 and 64-70s good spinners were readily taken at $1.90 to $1.92. The sale was a great success and the high prices paid were based upon the fact that choice Australians were becoming quite scarce.

The wool trade had been carried along by a current of textile buying which had swept over the country and while the more conservative members felt that basal conditions are not sufficiently sound enough to sustain, permanently, such high wool prices they were compelled, in order to keep in business, to pay growers' prices for incoming domestic wools that seemed improbable a few weeks previously. The great change that had come over the spirit of the wool trade was exemplified by the strength and activity shown at the Government wool auctions. The entire offering of 6,000,000 pounds of Australian wool had been sold in one hour at a recent sale with prices, on the average, at the top for the year.

The new clip generally was reported of good quality and prices paid to growers on the upward grade; Utah wools bringing 52-55c; Idaho wools, 48-50c; and Montana wools 50-55c. Examination of Boston wool receipts for past five years indicates that this city continued to sustain its premier position. Total receipts for year 1915, foreign and domestic, were 412,000,000 pounds; for 1916, 437,000,000 pounds; 1917, 491,000,000 pounds; for 1918, 487,000,000 pounds.

The attention of the wool trade continued, to a large degree, centered upon Government wool stocks and their disposal. Australian wools and domestic fine and half-bloods occupied the center of the stage. Choice Sydney wools, 64-70s and up, ex. sup. half warp, free, sold from $1.96 to $2; 64-70s average top making sold at $1.63 to $1.70; 64-70s good weft sold at $1.43; greasy 70s spinners sold at $1.80 to $2; greasy 70s combing sold $1.79 to $1.89.

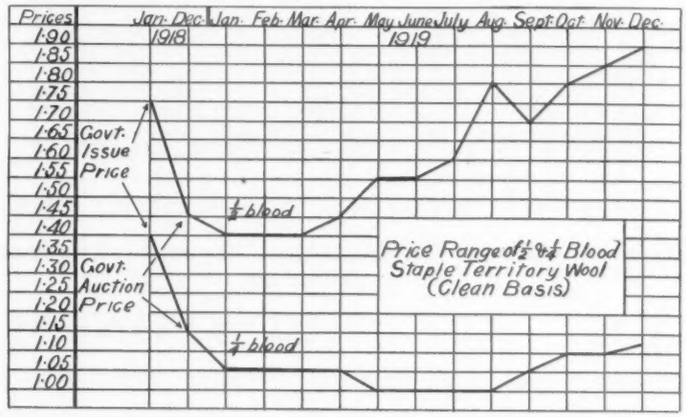
Marked Advance Everywhere

The wool trade, generally, had been caught in the post-war reaction and high prices all along the line were the result. The public, forced by war exigencies to saving, economizing and wearing low grade and cheap materials had gone to the other extreme; and as money was quite plentiful luxuries were the order of the day. In the period immediately after the Armistice, when the bottom seemed to have fallen out of everything, manufacturers designed high grade fabrics calling for fine Australian and domestic wool under the impression that the slower production of these fabrics would keep their mills going and their organizations intact; never dreaming, apparently, that in a few weeks' time they would have six buyers for these goods where they anticipated but one. The inevitable result was a marked advance in the prices of necessary wools.

Australasian Contract Cancelled

Reliable advices indicated that the contract between the British and American Governments for the delivery of Australasian wool had been cancelled. About 90,000 bales had been received by the Wool Administration against the original contract for 300,000 bales. This raised the question as to where our manufacturers were to look for a further supply of merino wool when present Government stocks were sold out.

Business on Summer Street became fairly active, but the general situation assumed greater complexity day by day. There was unquestionably a very strong manufacturing demand for wool; and the natural effect of this was to sustain prices, and also to minimize in the minds of some dealers the possible danger of taking over, outright, quantities of new clip wool at prevailing high level. The exceedingly strong prices being paid for choice Australian crossbreds were specialty buying on the part of mills accustomed to turn out a high-grade fabric. The bidders for these wools were few in number because the pace was set by high bids from the larger organizations who were determined to obtain the wools. Interest of manufacturers continued to be centered on the probable supply of Australians. When our Government supply gave out there would be no source open to the American buyer unless he were permitted to operate at the London sales. There was really no reason why he should not buy there, inasmuch as the British Government was in the wool business and would, apparently, hold the Australasian clip for one year after the signing of Peace Treaty, whenever that should come.



Wool Growers' Propaganda

About this time various organizations and associations in the West were endeavoring to educate the grower on the principle that he had always sold his wool too cheaply and that the cream of the profits were always taken by Summer Street. This was all in a line with the tendency noticeable elsewhere to eliminate, wherever possible, the middleman. Propaganda was carried on intended to make feasible the idea of the grower dealing direct with the manufacturer. The proposition of course was somewhat utopian but nevertheless had the immediate effect of making the smaller growers, especially, suspicious and disinclined to part readily with their wool.

A distinct feeling grew up in the trade against any stocking up with inferior wools, whether Australian or any other origin, and became increasingly manifest as the auctions drew to a close; so far as fine wools were concerned it seemed as though manufacturers were pretty well fed up and less inclined to climb after these commodities.

High prices were insisted upon by growers and paid, for the most part readily, by Eastern buyers. The Government auctions had established a high level of prices for wool, and while, no doubt, some buyers were operating in the Western field with misgiving, nevertheless to do any business in wools the Western price had to be paid. Desirable wools of the new clip were being bought at figures above auction quotations. Montana was the battlefield for the moment, and as there were three or four buyers to one seller growers obtained 58-60 for their wools. Anticipating the ending of Government sales dealers took on large quantities of western wools and as there was to be no competition from the Government a lifting of prevailing high levels was expected. Western growers sold their wools at such high prices to eastern merchants that the latter in order to dispose of their holdings at a profit required a higher price level on which to market. Department of Commerce figures for wool imports for the month of April indicate that the largest amount came from Uruguay, 13,825,883 pounds arriving from that country, while the next largest imports were from Australia and New Zealand, which together totaled 12,400,488 pounds. Total imports of wool for April amounted to 36,390,233 pounds, valued at $19,445,719.

Free Wool Market Prevails

For the first time in many months the wool trade had now a free market and could pursue its usual activities without let or hindrance from Government control and without competition from the selling of Government owned wools. Government sales had now come to an end and would not be resumed until November 1. Foreign markets continued strong. This was especially true of Montevideo wools. A little more interest was manifested in B. A. 3s, 4s and 5s. Fairly large importations of Cape wools were received. It was said that no two houses on the Street were making the same quotations on fine Capes. The period of publicity in wool prices came to an end with the cessation of Government sales.

Summer Street in July

In July Summer Street was carrying on in a fairly active condition. Domestic wools were coming in rapidly and manufacturing demand was removing them at almost equal rate. When the Armistice came in November fine wools were selling below parity with the crossbreds and low wools; the course of auctions had since corrected this disparity. At the beginning of the Government auctions last December wool prices all around were considered too high when regarded from the pre-war point of view and also from the semi-demoralized condition in which the mills found themselves on the cancellation of war contracts. Much uncertainty and hesitation were manifest; but at the third series of auctions British issue prices were taken as the basis of our wool administration's upset figures. Since that time mill demand for desirable wools has been so strong as to force prices upward to old figures and beyond for finer varieties of wool.

Though medium wools had not yet begun to move in large volume, there was a better demand for three-eighths bloods, both territories and fleeces, on the basis of about $1.35 to $1.40 clean. Territory wools on the fine edge were very strong, the best fine staple selling at $1.75 to $1.80, with half-blood staple at $1.75, and fine medium French combing wools at $1.55 to $1.65. Texas wools were quoted $1.35 to $1.40 clean for eight months and $1.70 to $1.75 for choice twelve-months'.

Considerable activity was noted for Cape wools. Arrivals at this time included a generous percentage of scoured wools, and these were taken up greedily by manufacturers. These wools sold at $1.50 to $1.55 for the choicest snow-white lots, with good wools at $1.40 to $1.45, average wools at $1.25 to $1.30, and inferior wools at 90c to $1.20. Short Capes were worth up to $1.75 clean. Domestic wools continued to sell freely. This was especially true of choice fine wools which continued to attract most attention from buyers. The clean cost basis of fine staple territories was $1.75 to $1.80 for choice clips, with half-blood staple selling at $1.70 to $1.75 and fine to fine medium French combing wools at $1.55 to $1.65. Three-eighths-blood staple was quoted on clean basis of $1.35 to $1.40, and quarter-bloods at $1.10 to $1.20. Territory wools were well cleaned up in the West and buyers were beginning to come home.

Prices in general continued to move along established high level, with the market is not quite so unanimous as to the maintenance of high prices as it was a few weeks ago. Some of the more conservative dealers were inclined to regard wool price structure as being based upon rather unsubstantial foundations, in view of the large wool stocks of the world, especially those controlled by the British government. They professed to see good reasons for high top and yarn prices, but less reason for extreme wool figures.

Australasian Cancellations Disturb Mills

The cancellation of the balance of our contract with English government for Australian wools was viewed with dismay by the manufacturers requiring that grade of wool. The cancellation became effective because of the strong desire of the War Department to get out of the wool business. A meeting, however, was held in Washington at which the American manufacturers met with Secretary Redfield, representatives of the War and State Departments and the British Embassy at which time the question of obtaining a further supply of Australian wools was taken up fully.

In August the Government intimated that excess profits made on wool in war times were to be returned to the farmers. Now that the Government control of wool had ceased, the Bureau of Markets, acting for the Department of Agriculture, became engaged in estimating, collecting and distributing excess profits made in the handling of wool for the Government. Profits above those allowed by the wool regulations were made by about 10 per cent. of the country dealers, and at the various distributing centers substantial additional profits were accumulated. The auditing of the account of the larger dealers would be a matter of months, as permits were issued to 179 concerns located at distributing points,

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while there were, in addition, 3,500 country dealers.

The action of the market in these days was rather a surprise to those engaged in its operation, for in spite of the generally disturbed condition of the world as indicated by foreign exchange rates and in this country by the radical demand of railroad employes for the modified application of Soviet principles to railroad ownership, foreshadowing the attempt to apply these principles ultimately to all industries, the market remained strong and the manufacturing demand showed no sign of easing off. The key to the whole situation was the goods market and delivery rather than price was the determining factor.

London Market Opened to Americans

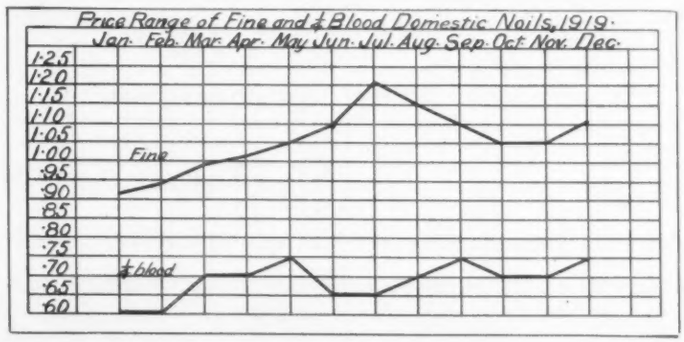
The announcement that the British Government would allow American buyers in the London auction sales came as a distinct surprise. The movement initiated by our manufacturers to arrange for importations of Australian took on new importance. The American Association of Woolen and Worsted Manufacturers passed a resolution to the effect that "in the interest of the consuming public and the industry every effort should be made in the direction of appreciably increasing the supply of raw wool" pledging themselves to take such steps as might be necessary to further this object. The wool consumption of the country, which reached its bottom in February when 27,000,000 pounds were taken by the mills had been rising steadily, June statistics indicating a consumption of 55,000,000 grease pounds; and as 44 per cent. of this total was fine foreign and domestic combing wool it was seen that if the demand for fine wools continued at that rate there would soon be a very appreciable shortage. Top-makers, subjected to continual pressure for fine and half blood production, were adopting a rather more cautious attitude regarding the acceptance of business. Spinners were ready to place top orders to run as far ahead as the first two or three months of 1920; but leading top-making establishments were rather averse to such operations, regarding them as containing a strong gambling element. Tops, it was considered might go higher if the demand continued urgent and if desirable wool stocks continued to diminish.

American buying of wools in London ceased to be an item of special interest. The demand for the limited allotment of 2,100 bales of fine merinos was quite good, but purchases had little effect on prices which were, in the main, on a parity with previous sales. There were immense wool stocks in Great Britain. The first five months of the year Great Britain imported 793,764 bales of merinos, 915,183 bales of crossbreds and 148,926 bales of East India wools. Stocks in England at this time approximated 900,000 bales of Australian and New Zealand wools, with some 200,000 bales in transit. Australian stocks were reported at 1,220,000 bales. The British wool authorities were endeavoring to provide a steady market in which foreign and domestic needs could be met without kiting of prices in desirable wools. The idea that American buying was permitted in order to prevent decline in wool seemed baseless. It was stated on good authority that the British object in rationing other nations at its wool sales was to keep competition for wools within reasonable limits. Wool values were very high, and would go skyward if all nations were allowed to scramble for supplies.

Wool Stocks in June

The Government wool report, as of June 30, showed large holdings more than sufficient to run the mills of the country for 12 months. Including tops, noils and Government wools all calculated on a grease basis, wools held by manufacturers, dealers and the War Department totaled 674,000,000 pounds. Average yearly consumption from 1908 to 1917 amounted to 565,000,000 pounds. In 1918 consumption arose to 740,000,000 pounds but medium and low wools were used in abnormal quantities for military requirements and the fabric output was correspondingly higher. If the demand for fine goods continues, wool consumption for the present year will run below the ten year average.

Quotations in September covered sales of unwashed Ohio delaines at from 83 to 85c, clothing wool at 70 to 72c, Ohio half blood staple at 81c, with clothing variety selling down to 68c; Ohio three-eighths blood staple 70 to 72c, with clothing wool at 60c. Michigan delaine sold up to 81c. Fine staple territory sold from $1.80 to $1.90 and half blood staple from $1.70 to $1.80; three-eighths blood staple $1.35 to $1.40 and quarter blood staple $1.15 to $1.20. At the recent Liverpool sales, the best merinos advanced from 10 to 15 per cent. above closing prices of last London auction. British issue price for superior 60s is 65 pence or 46 per cent. above Government figures; superior 70s with the Government price of 68 pence sold at 115 pence, an increase of 69 per cent., superior 80s issuable at 71 pence sold at 112 pence, an increase of 57 per cent. Australian wool growers were well satisfied with the way things were going at the London sales. They were paid an average price of 31c for their entire clip by the Imperial Government, and they are to receive in addition to the flat price paid, some 50 per cent. of the profits on all wools sold by the British Government for other than military purposes. This profit will not be the difference between Government purchase price and sale price in London, but based upon the net profit made by the British Government after freight charges, marine losses, storage and overhead have been deducted.



Fine Wools Sell High

In spite of the many influences operating on the market it seemed as though it would hold strong for quite a time to come. High prices were being paid for the fine wools of the domestic clip, but in order to market the total clip at a reasonable profit, clothing wools and the lower medium wools would have to advance. The urgent demand had been at the top, and comparatively low prices prevailed for three-eighths blood, staple fleece wools, being quoted from 70 to 73c, while territories were in limited demand at $1.35 to $1.40 clean cost. British wool stocks were accumulating on a collossal scale. In July 431,578 bales of foreign and Colonial wools were imported of which amount 20,489 bales were re-exported, leaving a balance of 411.089 bales. Great Britain's imports of wool for first seven months of the year totaled 2,117,689 bales. Native wools grading 50s and above were selling at high prices, but Lincolns, Leicesters and Devons were quite neglected. The British combing mills were reported as greatly handicapped by lack of coal, short hours of labor, refusal of the men to work overtime and by slowness of the wool authorities in making allocations. The congested wool condition was also operating against the successful auctioning of wools.

The large consumption of wool then going on indicated apparently, that cloth production was larger than in 1918. But the fine and half blood wools undergoing manufacture have such a comparatively high shrinkage that, as a matter of fact, much less clean wool was being converted; and as it takes much longer to spin fine yarns and to weave fine fabrics actual yardage being turned out was much less than a year ago. In July of 1919 63.000,000 pounds of wool, on grease basis, were consumed, as against 61,000,000 pounds in July, 1918.

Stocks Bearish, Manufactures Bullish

The strength exhibited in London gave additional support to the opinions of dealers in this market who had all along contended that while figures regarding large world wool stocks seemed bearish the technical condition of the woolen industry everywhere was essentially bullish. The Canadian wool clip for 1919 was reported exceptionally good, both as to quantity and quality. Production for year will total 15,000,000 pounds as against 12,000,000 pounds last year. Canadian consumption of wool would probably be less than in 1918. The movement of the surplus to the American market had already commenced. No change of trend was visible in the wool market either up or down. A stabilized level had been reached with minor fluctuations, but for prices to break through with force on either side would require factors not then visible. There was no unrest on the Street, which on the whole was in a rather contented mood; for underlying the whole question of wool selling was the strong and persistent demand for fancy goods at fancy prices.

Wool Trade's Annual Outing

Early in September the Boston Wool Trade Association held its Fourth Annual outing at the Tedesco Club, Swampscott. This was the first outing since 1916. More than 400 members and guests were present, including a large number of manufacturers. An interesting indoor program had been provided and as the weather was propitious the field sports furnished a very enjoyable feature of the outing. The gold cup presented by President Samuel G. Adams was won by O. W. Forte with a net score of 73. A notable guest at the outing was the Hon. J. C. Watson of the Colonial Combing, Spinning and Weaving Co., Sydney, Aus., a former prime minister of that Commonwealth.

It had now been established beyond doubt that Australian wools would be sold for British account in Boston in the near future. The British controller of wool supplies, Colonel F. Vernon Willey, came to this city making preliminary arrangement and was followed later by Frank B. Windeler, auctioneer for previous British sales. Western growers were determined to put up a fight to prevent future auctions of Australian wools. They claimed they wanted protection for the domestic product. One good way for them would be to improve their breeds and raise more fine wools. The wool world generally is letting down in its merino production; if the American sheep grower raised more delaines and fine wools, manufacturers would stand for any kind of rational protection.

Growers and Manufacturers Differ

That Australasian wools were to come here was all very good news to mill men but rather rough on the western wool growers who were unanimous in their opinion that "England should not use the United States as a dumping ground for her wool." To be consistent these growers ought to object to American purchases in London. They seemed to be ignorant of the fact that the entire domestic clip is only about 50 per cent. of the wool consumption of the country. They emphasized the fact that on June 30 this year, there was enough grease wool in the country to run all the mills for 12 months. If wool consumption were normally distributed there would be more force in the contention; but wool, in grades not wanted, is technically non-existent. A reply to the growers' contentions was made in full by the National Association of Wool Manufacturers. The main points of the answer were that these wools were coming in at the urgent request of American manufacturers for the completion of fabrics for which domestic wool was not available and that the 15,000,000 pounds of fine wool to be imported was too small to demoralize the wool market.

Wool Trade's Annual Meeting

The annual meeting of the Boston Wool Trade Association was held November 19. The following were elected officers: President, Charles P. Nunn; vice-president, E. W. Brigham; secretary-treasurer, F. Nathaniel Perkins; Executive Committee, S. W. Bridges, F. W. Hallowell, Morris Rosenthal, C. W. Ryder and R. L. Studley. Membership of the Association was given as 118 active and 276 associate members. An amendment to the constitution was made whereby active membership in the Association was contingent upon the individual having been engaged in the wool business in the city of Boston for a period of at least one year or who had been an accredited agent for some firm or corporation which had maintained an office in Boston for at least one year.

Wool manufactures were now running at high pressure and wherever possible

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double shifts were used to expedite production. Worsted spindles were running 10 per cent. and woolen spindles 11 per cent. on double shifts. Further speeding up of textile machinery was shown by Government reports indicating that whereas in September, 87.8 per cent of the worsted spindles in the country were reported active, in October this figure had risen to 92.8 per cent., the high point for the year.

Bullish Sentiment Permeates Market

Bullish sentiment permeated the wool market. Summer street could not look at the wool situation in any other than a very favorable manner. The wool market was being lifted from the top by the attractive power of public demand, not being forced up from the raw material bottom by greed and profiteering of wool grower and merchant. Wool manufactures, such as tops and yarns, were quoted higher at this time than at any period for months.

Prices at London sales just closed had left wools higher than previous sales, establishing record quotations for the year and in some cases for all time. At the closing sale American buyers took over greasy combed merinos at $2.57 on an exchange of $4.20. Bradford top makers badly behind in deliveries left spinners quite willing to pay excessive prices for spot Government tops in that city. The Montevideo market was reported as very late with arrivals scanty, but clip in splendid conditon. Choice warp 64s, shrinkage 48 per cent., were offered in this city at 88c landed, and Concordia wools equal to last year's were quoted in round lots at 82c landed.

Manufacturers it was said contemplated putting on the market, in the near future, attractive fabrics made from medium wools. The idea that the world could be clothed in fine wool raiment was so preposterous that only excited post-war imaginations prevented the truth from being seen. The whole situation was considered very abnormal and reaction inevitable. The turning of mill demand on medium wools will raise the price of these wools so that there would be little in such change of heart among buyers to suggest any appreciable lowering of prices for the finished products. The tide had ebbed somewhat in the direction of crossbreds, but the public taste was still flowing toward fine wool fabric. Recent advances in superior merinos at the London sales had been sufficient to raise the price of the fabrics to be manufactured from them an additional 75c to $1.00 per yard.

Wool Growers Talk Higher Prices

Wool growers were still talking of higher prices for fine wools. They claimed that the sheep industry could only be maintained in this country either by the advancing of greasy fine wools to around $1.00 or else by manufacturers making a much better market for crossbred wools. Any sheep business founded on a wool and mutton basis would produce a large quantity of three-eighths blood wool, which clip, if not marketed profitably, would inevitably injure the sheep producing industry in this country. This, in general, was the growers' position.

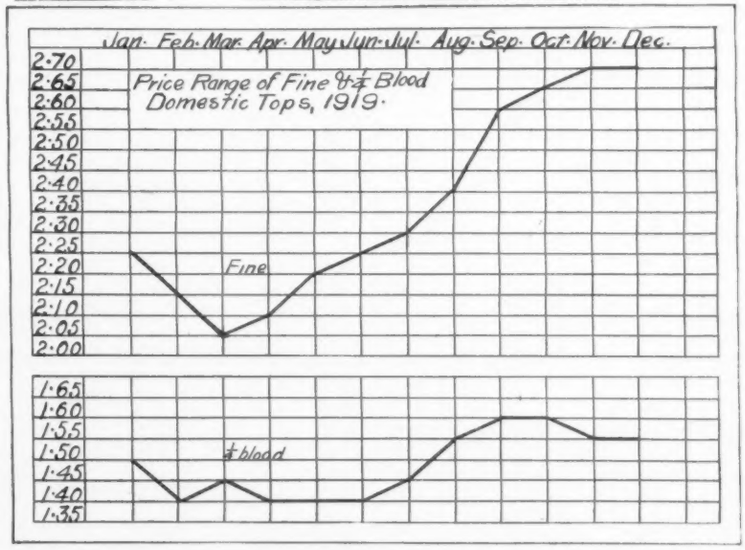
Pre-War and Current Quotations

In the closing month of the year more attention was paid to wool prices by the public press. Considerable confusion is always found in such reports, which usually confuse wool in the grease with wool on a clean basis. Nevertheless, looking at pre-war prices and those prevailing, the differences were so marked as to easily lead to error. Thus in October, 1913, delaines were selling at 22c. in the grease, as against 90c. today, and fine Montana staple was quoted at 55c. clean, as against $2.00 on present market. Fine worsted yarns, 2-40s, sold at 90c. and 2-50s at $1.00, as compared with present quotations around $4.00 and $5.00, respectively. At that period S. A. 4s and 5s could be landed in Boston at 22c., which on 28 per cent shrinkage showed a clean cost of 30c. Similar wools are quoted on Summer street today around 60c. in the grease. There was, however, nothing peculiar to the wool market in this astounding rise in values. Wool is simply one factor in the general textile situation. The wool trade generally is not especially pleased with the continual advance in prices, but is powerless to bring the process to a halt. So long as production falls away behind public consumption just so long will wool prices, as a part of the general textile structure, hold strong.

The basis for the great strength shown in the local wool market was revealed by the October report of the Bureau of Markets, showing a total consumption for that month of 69,000,000 pounds of wool, grease equivalent. This compared with 60,000,000 pounds in September, 56,000,000 pounds in August and 63,000,000 pounds in July. Of this amount 52 per cent. was of wools grading half-blood and above, indicating the very abnormal demand for these wools and accounting for the high prices paid for them. Massachusetts retained its hold as the premier textile State by consuming 37 per cent. of the total.

Contracting had started in and while operations were confined almost entirely to Nevada, negotiations, it was understood, were proceeding in other early States. This clip, approximately 10,000,000 pounds, is generally estimated at about 90 per cent. fine and fine medium, and as shearing commences in April and fine wools are still rising in price, growers are being offered prices about 25 per cent. higher than last season. Last season's offerings opened at 40c., but the lowest price made so far has been 50c. for a clip of 1,500,000 pounds. Smaller quantities have been contracted for at 55c. Evidence of the great activity of the wool consuming machinery of the country was shown in recent Government statistics. Woolen and worsted spindles were at highest degree of activity for the year. In January the woolen spindles of the country were 63.5 active and are now up to 93.3 per cent. Worsted spindles 62.5 in January are now 93.5 active.

When the British Government took over the Australian clip, appraisals were made of the various sorts and qualities. Some wools were appraised as low as 20c. and others as high as 48c., the average appraisal being 31c. The wool trade, until quite recently, has been completely in the dark as to how much money the Imperial Government has been making on its wools. Some statistics are now available and it would seem a safe estimate that 200 per cent. profit has accrued on wools as a whole. Greasy super merinos appraised at 48c. have sold at $1.37, or 183 per cent. advance. Greasy superior crossbreds, appraised at 48c., sold at $1.30, or 170 per cent. advance; greasy pieces, combing, appraised at 18c., sold at 63c., an advance of 350 per cent.; greasy necks, appraised at 22c., sold at 98c., an advance of 350 per cent. In a fair estimate of actual profits about 12c. ought to be added to original cost of wool to cover all charges and then out of the balance the Colonial wool growers' rebate of half net profits on all wools sold for civilian use must be deducted.



Prices for standard sorts in the local market were well maintained. In delaines, fine, half-blood territories and fine pulled wools no easing of values was visible. The following comparative quotations for Australian and domestic wools are of interest, approximate accuracy only being suggested. Fine Australian 70s, $2.70; fine territories, $2.00; Australian 64s, $2.50; territory half-blood, $1.85; Australian 56-58s, $1.80; territory three-eighths, $1.30; Australian 56s, $1.15; territory quarters, $1.15. Texas and California, twelve months, $1.75-80; domestic AAs, $1.85-90.

British wool authorities have recently revised downward the anticipated Australasian new clip from 2,575,000 to 2,250,000 bales. This reduction of 300,000 bales in the estimate may probably be ascribed to expert opinion regarding ill results of the severe drought experienced in the land of the southern cross these few months past. The Imperial Government is endeavoring to distribute its immense wool stocks as rapidly as possible, and it is said that the Coleman street auctions have reached their maximum in this respect and that other purchasing centers must be arranged for, the latest experiment being a wool auction in Manchester, the cottonopolis of the world. Manchester is making a strong bid at the present time for recognition as a wool distributing center on account of its proximity to the great port of Liverpool, only fifty miles away, its ship canal running from the Mersey into the heart of the city, and also its nearness to Yorkshire, the chief wool textile county.

That Australia looks to Boston as a desirable market for tops and fine wools was affirmed by Hon. Mark Sheldon, Australian high commissioner, at a dinner given in his honor by a number of leading wool merchants and others. Imperial control of wools ends next June, and while there was some sentiment in favor of a longer period, Mr. Sheldon thought that the Federal and Imperial Governments would agree to terminate at that time. Australia had 85,000,000 sheep and New Zealand 25,000,000 sheep. Wool growing, rather than meat production, was now the primary consideration. Australians had developed the breeding of sheep into a marvellous business and every additional half pound added to a fleece was considered clear gain, because it cost no more to feed the sheep. French buyers left in Australia by the war had assisted greatly in the appraisals, which had been no easy matter, seeing that there are 890 distinct types of Australasian wools.

The Cape market at the close of the year was reported as irregular, with Japan operating quite freely and the market for choice wools very strong. There was more or less speculation going on in the Western district and American buyers conspicuous by their absence. Good clean combing Capes were offered on the market here around $2.15, with as high as $2.35 for choice lots. Choice 12 months' combing quotations ranged from $2.40 to $2.50 on a low exchange rate of $3.80, and choice 10-12 months' combings from $2.28 to $2.35 on same exchange rate. The Montevideo market was firm, with a rising tendency. Contracting had already commenced in southern Patagonia and in Puntas generally. Choice Chubut was quoted at $1.78 clean landed. Argentine wools were quiet, though firm.

Unsettled Year in Carpet Wools

Superabundance of Filling Varieties —Silver Rise Stops China Trading

THE past year has been a dull one in carpet wools, although far from lacking in important incidents. It was a year of readjustment and the close of it found less progress made in the stabilization of the market than factors interested had a right to expect. The Government is just about disposing of its last holdings of carpet grades, whereas a year ago its holdings aggregated about 20,000,000 pounds of wool. The auctions held throughout the year in the disposal of these holdings was an important influence and, in the opinion of followers of the market, contributed the most of the dulling effect from a purely trading point of view. The long lay-off from carpet and rug production during the war was not to be righted in a single year and, in connection with general production difficulties, there is no great mystery in the run down condition of the material end of the carpet industry during the year 1919.

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It was practically a free market with the beginning of the year, and, outside of the liquidation of Government stocks, had bright prospects of coming quickly to a basis of regular operations. In January, except for a few open willowed balls, obtained at the first Government auctions at 31 cents, and a quantity of China combings coming from the plants operated heavily in China during the war, there were none of the leading grades active. Values were unsettled at this early date, outside prices varying as much as 10 cents a pound. The Government was compelled to cancel the liquidation sales scheduled for February, owing to the listless way in which the first auction went. Efforts to establish a trading basis were of small avail at this time, a few sinings moving in the open market at one cent above auction levels. The mills seemed to be plentifully supplied with wools to inaugurate carpet making and selling in the spring.

Peculiar Turn in Supplies

Shiploads of African and Asiatic wools began arriving early in February and from that time forward a peculiar increase in the supply further weakened the home markets. The upset prices in the Government auctions lost their force and the early game of seeking the minimum without touching it, as the bars were let down, lost its attractions. By the first of March considerable recuperation was shown and buying was keener in the Government auctions, stimulated by delays in obtaining import licenses to bring in offerings from Turkish ports, by increasing operations in the mills and by approach of the time when the Government residue would be principally off wools. At this time importers occasionally were able to undersell the Government levels, as is noted in an instance of Szechuen No. 1 that sold at 29 cents a pound at about the same time the auctioneer was getting 31 cents on the block. With all the weakness in the first quarter prices went higher towards the middle of the year, but, in seeking to place a responsibility, it is not regarded so much a question of values as of the general upward sweep in commodities of all sorts after the war.

Dumpings on Barter Basis

At the beginning of the second quarter a varied assortment of carpet wool that had been held back abroad during the war sought this market. Correspondents in Spain, Greece and regions thereabouts began sending carpet wools in this direction, bartering them for merchandise of various kinds at the best prices they could get. Many of these shipments came to importers who had never had wool in hand before and the result was a period of "dumping" bales here and there for what they would bring. The paths were full of new wool salesmen for quite a time. Government releases, and purchases made from floating stocks before the movement from the Mediterranean ports began, established a tentative level of prices in the grease in March, and in variations of 3 to 4 cents therefrom a considerable amount of this trading was put through. Throughout the year little wool came to this country from Russia and almost none at all from the Balkans and the Black Sea districts. It was well on to the close of the second quarter when shipments of Scotch blackface began coming through. By the end of the year, however, comparatively large purchases were being reported. With a bulking supply of grease wools to operate in, it naturally followed that the sales of clean Government wools dragged considerably, for it became noticeable before long that mills preferred to return to the operation of their own scouring plants as fast as it was feasible to do so. In this period China packing was on the increase and prices firm, combing China being valued at 38 to 41 cents. There was a slight movement in East India grays, following the London sale. A belated transfer of Kandahar set a valuation on it at over 50 cents a pound.

Rise in Silver

From the middle of the year and on to the end not much more than scattered trading could be noted in carpet wools. Operations in China became disquieting, with prices high and bidding brisk, owing to the continuous rise in silver. During the years of the war China was the main source of the carpet wool supply and it was well drained of the clip most of the time. The developments included the establishment of scouring plants and the operations were going on such a scale that, in instances, wool men made the long trip from this city to superintend and consign the packing several months after the armistice.

China Trading Stopped

In the last few months the asking prices of Chinese holders of the clip ran up to figures that became practically prohibitive to American buyers, and a corresponding dullness in trading ensued. It so transpired that filling wools were plentiful from other sources of supply, as indicated, and it is said the mills were able to reduce their consumption of the combing sorts by using filling wools to a wider extent. The high price of silver obtained not only in China but the world over, hence, in the wool trade the practice of paying for purchases in taels in China at once put a restriction on trade. It brought about a practical suspension of operations for weeks and so wide became the difference in the rate of exchange that for weeks China wools have been cheaper here than they are in China. This topsy-turvy condition cannot go on forever, the market feels, but with the Chinese growers standing firmly against important price concessions the deadlock between them and American buyers stood the year out with no remedy in sight. The fall in international exchange in other countries gave similar results, because the disparity made the wools stand at unnatural values.

Softening Period

Unstable values, combined with lowering of operative capacities in the mills caused a sharp slump in November. Valuations started downward rapidly and, reaching the bottom point of the year, were said in a number of cases to be approximately the same as just before the war. How much low-priced wool was picked up by the mills in this "soft" period it is hard to determine. In this interval it is possible that the loosely consigned wools from southern ports were somewhat cleared out of the situation, but it was not certain at the close of the year that the liquidation of these irregular supplies could be completed immediately. The weakness in Government holdings the whole year long and the weakness in private consignments in the hands of inexperienced importers apparently more than balanced the stoppage of supplies in China. Where the whole thing will work out eventually, there is little fixed opinion at present although there is every confidence that with the passing of this interval of complications and irregularities, there will return a more stable market for the carpet wools that domestic consumers were accustomed to used most freely.

Wool Trade of Great Britain in 1919

After Effects of State Control—Factors Which Have Influenced Values

(From our Regular Correspondent).

BRADFORD, ENG., Dec. 31, 1919.—The British wool textile industry in 1919 showed a remarkably rapid transformation from war conditions. When the armistice was signed, practically the whole of the industry was under State control, and prices of wool and tops were fixed by the Government. At the end of the year the industry was running practically on normal lines except for the Government ownership of the Australasian clips and minor restrictions on exports; and the whole trade was experiencing a boom which taxed the resources of machinery to the utmost.

As in most other industries, the primary stages of the transition from the artificial war conditions were marked by a lack of confidence and much hesitancy. Owing to inadequate shipping facilities, there had accumulated 3,000,000 bales of wool in Australasia, while there were 500,000 bales in South Africa, and the equivalent of 250,000 Australasian bales in South America. It was feared that this excessive weight of wool would depress values, and business was consequently difficult to get going, while for a long time there was a serious problem facing the industry in the refusal of France to take up contracts for piece goods and yarns amounted in aggregate to £15,000,000.

Acting in accordance with the pessimism of the times, the Government actually reduced its issue prices for wool commencing from April 1, and fixed them for eight months with the idea of stabilizing values and encouraging business. Government topmaking was fixed to finish on April 30, and arrangements were made to reopen the London Sales. The private market for tops reopened in April, merinos being 8d to 9d per lb. above the Government issue prices, and even low crossbreds 3d dearer. The history of the post-war market practically commenced on April 2, when the London Sales reopened with 80,000 bales on offer, with a reserve on the wool slightly below issue prices. At once pessimism was completely dissipated. Compared with the Government prices, merinos and fine crossbreds showed an advance of 10 to 15 per cent., and medium and low crossbreds 5 to 7½ per cent. It was a turning point in the industry. Though wool and tops continued to be issued at the Government fixed prices, the open market showed such phenomenal advances that the Government prices became almost a dead letter.

Prices of fine wools rose rapidly, and the dearness of clothing caused the Wool Council to press for a revival of the standard clothing scheme, the recommendation being turned down after the introduction of the Profiteering Act. At this period there were great difficulties with regard to the output of merino tops, which fell to 60 per cent. of the war-time production. The woolcombers for a long time refused to work over-time, and it was not until toward the end of the year that the employers persuaded them to do so. At length, in August, raw material supplies caught up with the home trade, and a decline was registered. But a new factor was introduced. Up to this period competition at the London wool sales was practically restricted to the home trade. When the decline occurred, foreign buyers were allowed to purchase stated quantities, and on September 1 the wool market of the United Kingdom was once more thrown open to free and unrestricted competition, while at the sale time the export of tops was allowed up to 46s quality. The result was seen at the September sales, where merinos and fine crossbreds were again dearer owing to the extraordinarily keen Continental competition. A reaction also occurred in medium and coarse crossbreds, neglected owing to the lack of German export trade, and some recovery took place, though only of a temporary nature. At the end of the year merinos and fine crossbreds had reached a phenomenal level, while on the other hand medium and coarse crossbreds were comparatively cheap.

The course of events is best indicated in a summary table of values of tops at Bradford:

Per lb.	July, 1914 d.	Nov., 1918 d.	Apr., 1919 d.	Dec., 1919 d.
70s merino	33	77	73	160
60s super	31½	73	69	150
56s crossbred	23¾	58	54	102
50s crossbred	20½	51	47	78
40s prepared	16¼	37	33½	38

It will be seen that merinos are practically five times their pre-war price, while on the other hand low crossbreds are less than 2½ times. The general level of commodity prices in the United Kingdom at the end of 1919 was nearly three times the pre-war level.

A similar comparison for standard worsted yarns is as follows:

	July, 1914 s. d.	Nov., 1918 s. d.	Apr., 1919 s. d.	Dec., 1919 s. d.
2/16s Worsted medium, per lb.	1 8	7 4	5 9	7 0
2/32s Worsted medium, per lb.	1 10	8 6	6 3	8 0
2/60s Botany, per lb.	3 5	14 6	12 3	20 0

Yarns were not controlled in price during the war, and consequently rose to their economic level. Low qualities are actually slightly cheaper than at the time of the armistice, when the production for civilian trade was limited; but on the other hand Botany descriptions are considerably dearer, and nearly six times their pre-war price.

The Post-War Boom

The causes of the phenomenal rise in the value of fine wools, tops and yarns were several. When the war finished, stocks of civilian cloth were small; the demobilized armies required reclothing, and there had been a redistribution of purchasing power in favor of the masses. Fashion ran strongly in favor of the finest worsted goods and high-class tweeds. Partly this was a reaction from khaki; partly a wave of fashion which had shown itself before the war; partly an increased standard of living; and partly a natural desire to put good cloth into a suit which must necessarily be dear. On the other

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side of the scale, the supply of worsted goods was limited by the production of the combs, which at one time were only producing 60 per cent. of the war-time amount. The demands of the world were concentrated on the only machinery available during the whole of the year—that in the United Kingdom and the United States. At the end of 1919 manufacturers were booked up to the following autumn on Botany goods and high-class tweeds, and Botany spinners had work in hand for months to come. The restricted output of worsteds left little margin for export, and consequently woolens showed the greatest improvement, and easily beat all previous records during the last half of the year.

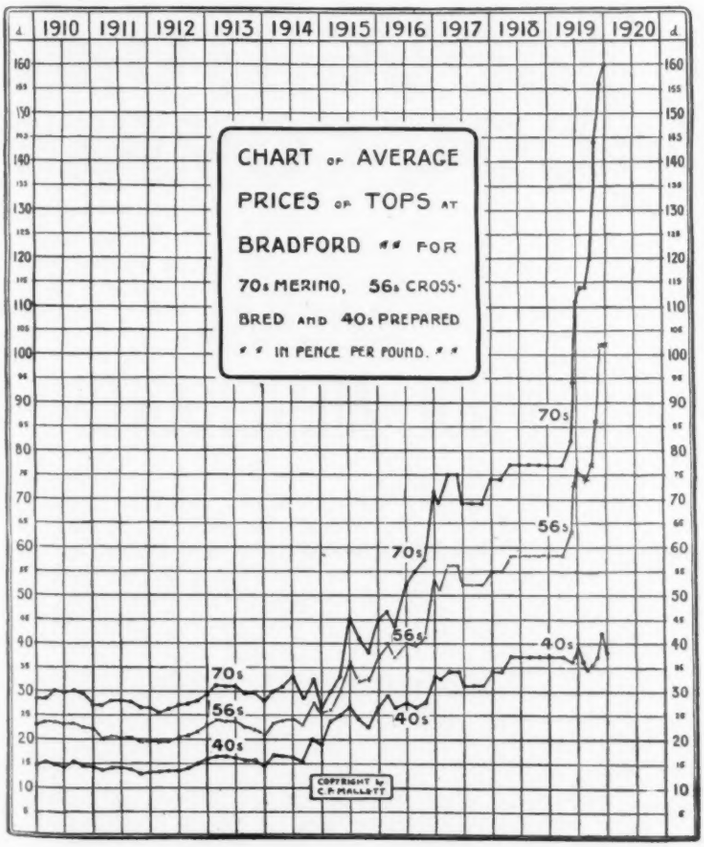
Quite a different position prevailed with regard to medium and coarse crossbreds, which before the war depended so largely upon the German market. For a long time they were badly neglected, and declined in price. Towards the end of the year some nibbling on the part of Germany, together with an improved home and export trade, brought forward a spurt of business and gave prices a lift; but at the end of the year they had again receded.

Facts and Figures

Owing to the Government purchase of the Australasian clip and the concentration of marketing in the United Kingdom, the amount of wool imported into this country has been a record, and there has been extraordinary congestion and delay in transit. The imports of foreign and Colonial wool in 1919 (eleven months) have been 992,000,000 pounds, of which only 132,000,000 pounds have been re-exported, leaving 860,000,000 pounds retained, compared with 804,000,000 pounds, the abnormally large figure in 1915. The imports of manufactured goods have been practically negligible, whereas before the war they averaged over one-fourth of the exports. Export trade has been limited by the paramount needs of the home trade, by the restricted output in the worsted branch, and in the earlier part of the year by regulations and restrictions. Of tops there have been exported 12,212,000 pounds (eleven months), compared with 43,633,000 pounds in 1913; of noils and wastes, 17,219,000 pounds, compared with 19,397,000 pounds in 1913; of worsted yarns, 21,842,000 pounds, compared with 49,907,000 pounds in 1913; of worsted tissues, 26,690,000 yards, compared with 62,490,000 yards in 1913; and of woolen tissues, 118,225,000 yards, compared with 100,530,000 yards in 1913. In each case the comparison is for eleven months of 1919 and the full year 1913, so that the improvement in woolen tissues is striking.

Prospects for 1920

So many prophets have gone astray during the past year that traders are chary about forecasting the future, and confine themselves to short views. During 1920 the period of Government purchase of the Australasian clip comes to an end, and in the autumn wool will be sold once more under private auspices. The export of worsted yarns is limited to 3,500,000 pounds per month cumulative, and the export of tops is limited to 46s quality and below. Both these restrictions may be expected to disappear before another year has elapsed. There are still some Government tops to be sold, but practically speaking open market conditions have now been resumed in every branch of the industry. Manufacturers, Botany spinners, and merino topmakers are all booked ahead for months to come, and with the exception of medium and coarse crossbred tops and yarns it seems pretty safe to say that the demand will be in excess of machinery capacity, with resultant high prices and good margins in the twelve months of 1920. Woolen manufacturers, unhandicapped by shortage of yarns, should do better in turnover than worsted manufacturers. There is still an enormous vacuum to be filled in Germany and Austria, which outweighs the assistance which will accrue when German machinery comes fully into operation. A period of strenuous activity seems assured for all kinds of machinery, with the proviso that the rapidity of Germany's recovery will determine the future of medium and coarse crossbreds, the production of which is in excess of home demands. Raw material supplies are plentiful in the bulk, and it may be found that they are rather too abundant for the requirements of machinery, which again will help to create good margins, though fine wools are likely to be all wanted. There seems good ground for believing that the wide discrepancy between the value of fine and low wools will be lessened, and while values generally are very much subject to financial considerations affecting all trades alike, it is obvious that topmakers will not want to buy merino wool in the Colonies next autumn on the present level of prices.



THE ABOVE CHART (COMPILED BY MR. C. F. MALLETT, BRADFORD, ENGLAND) SHOWS THE COURSE OF AVERAGE PRICES OF WOOL TOPS AT BRADFORD DURING THE PAST TEN YEARS. THE QUALITIES SHOWN ARE 70s MERINO, 56s CROSSBRED, AND 40s PREPARED. FROM JULY, 1917, TO MARCH, 1919. THE PRICES SHOWN ARE THOSE FIXED BY THE BRITISH GOVERNMENT

Readjustment in English Substitute Trade

Year Has Been the Best Known from a Financial Point of View

(From Our Regular Correspondent)

DEWSBURY, ENG., Jan. 1.—The year that has just closed in the heavy woolen district has, in common with the period in other industries, shown the effects of changing over from war to peace conditions, and a condition of affairs approaching the normal of pre-war years has become more and more accentuated as the year has progressed. Mills are now producing cloths for civilian purposes, whereas for years they have been turning out mostly materials for the various Allied services.

During the first months of the year mills still had Government orders to complete — contracts for discharged men's wear and certain lines of standard cloth—and as Government work was completed civilian goods took their place. Some anticipated difficulty in the turnover of business, but these difficulties gradually disappeared and less loss and anxiety came along than many thought would be the case. The change was a gradual one and mills were aided by the fact that there was an exceedingly good demand for every kind of woolen cloth that could be produced. In fact, all through the year the demand has far exceeded the supply and at present work is in hand for well into next summer.

The position of the people generally has been reflected in a very great measure in the demand for certain qualities of cloth, both men's and women's wear. The pre-war standard of this district's production has not been accepted during the past year, many changes having come about. A better class of material has been produced in every direction. During the war the larger proportion of goods turned out for civilian wear were of a plain type piece-dyed goods, blacks and blues predominating. A few oxfords for semi-mourning were also disposed of. Recently the demand has been for finer grades for both sexes, and a very large quantity of tweeds are now sold ahead. Perhaps the most striking change has been the call for very bright colors in light shades, not only for home consumption but also for export, and many shades are on the market today that were not thought of prior to the war, some in whole colors, in light blue, rose, blue and white mixed, checks in blue and red or brown striped, and similar mixtures. Some might say they were the extremes in shades, but they fill the bill where the demand comes along, and in face of the great scarcity of dyes that are required for these particular lines mills are now producing them in immense quantities.

Finer Goods in Demand

Finer goods are also being called for, especially for ladies' wear, and fine mantle and costume cloths are eagerly sought after—imitations of pre-war all-wool materials.

All the year the output has been well maintained; it gradually improved as men returned from their different services and women from munition works. The effect of a shorter working day has not had the result that was anticipated; no doubt the quality of the material produced has had an important bearing on this question. Designs have been on the plain side generally and have been such as lent themselves to rapid production, and probably the actual yardage has not been much, if any, lower than under former conditions.

No labor troubles have retarded production; advances in wages have been granted and under an agreement on both sides the increase today shows an advance of 135 per cent., including everything, over wages paid in 1914. Of course this has had the inevitable result of higher prices on the finished article and, coupled with the increase in price in every kind of material, has resulted in the high prices for everything that the loom turns out today. Cotton warps that were at about 20 cents per pound are now well over a dollar.

Export Trade

The export trade is again opening up. From various parts of Europe, and especially in Scandanavia, is the demand enormous. The people in that country and in Holland were strictly rationed, for obvious reasons, for the last three years of the war, and are now taking all they can secure. France has taken large quantities and is still asking for more until the time arrives when her own mills can operate more freely.

The Far East also is coming along with its orders in spite of the high prices ruling. The Central Empires are not operating as they would like to, owing to the adverse exchange. Still, something is being done in those countries and if arrangements which are now pending were fixed up much more would be done. The future is full of promise for two or three years at least. There is every prospect of a big call

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on all local productions, and there is confidence in every quarter. Credit is good; supplies of almost all kinds of raw materials are not wanting; labor is fairly plentiful, and all appears bright.

Raw Material Conditions

In raw materials it has been a mixed year. The change-over has had far more effect on factors in this end than among the mills employing them. When the year opened the restrictions on rags and shoddies still existed with all the difficulties they brought to the trade, but the year had not advanced far when they were withdrawn and dealers were then able to trade with full freedom. Quantities of domestic stock were still to be had, the supply having been well maintained and prices for a few lines having advanced. On the other hand, owing to the gradual withdrawal of orders for various goods for the services, enormous quantities of Government cast-off material and clips were put into the open market, and at once a change came.

The rags which had been employed for blankets and other materials were soon free of all control, and they brought prices of coarse grade stock down with a rush. They were used for a variety of purposes and continued to remain at an average price for many months, until a scarcity was apparent and then their values appreciated until today they are at a very high figure and stocks are very limited. Shortly after the turn of the year offers of clips and old stock came from America, and immense quantities were placed in this market. Good and poor stock came along, but where a real good stock was offered it was generally taken.

A good deal of speculation took place; goods were shipped on consignment, and some local dealers bought heavily. The goods were really welcomed at the time, but as the months passed by and business began to open out in America shipments became smaller, and they practically ceased by the end of June. Since then only moderate quantities have come along; some have been returned, and today some are still at the various depots in this district, held up by reason of the high limits placed upon them by the owners. Probably these will be reshipped to their original markets.

Imports from America

In domestic stock, supplies were, as is usual during the early part of the year, somewhat restricted; those coming from the United States made up for any deficiency, and by the end of March a crisis was reached in regard to certain grades in new and old. Low grade stock slumped materially. Speculation was dead and the auction sales almost deserted. One did not know what was about to happen. Imports from the Continent came pouring in. France, Holland and Belgium started again to export their cast-offs and since that time immense quantities have come along and, generally speaking, have sold freely. One marked feature of those coming from Belgium is their condition compared with that which prevailed prior to the war. The difference was most noticeable, the material being worn almost threadbare, stockings darned with all kinds of material, and in some cases it was difficult to distinguish the original. Men's wear was far worse than that of the other sex, and it was almost pitiful to think what the wearers had passed through as indicated by their cast-off wearing apparel.

These countries are not now shipping the quantities they did some months ago. Every week more and more woolen mills on the Continent are getting into work and consuming their own raw materials, and exporting them to other far-off markets for which credits have been opened in order that they can secure what is necessary to find labor for their help. Poland, Czecho-Slovakia and Alsace are now operating freely. The heavy woolen district of France is also consuming large quantities of stock, so much so that more than one line is now reserved for its special use and the Government has prevented its leaving the country. Under these circumstances it is not to be wondered at that prices have risen during the last two months. This applies to both imported and domestic stock, until today records are made for most lines. Prices are realized that were never imagined even at the time when the Government thought it wise to control them.

Price Movements

In clips, worsteds are three to four times the 1914 figure, and scarce at that, probably owing to the fact that the production of this material has been exceedingly limited. In old stock the prices are even proportionately higher than in new. They are wanted to replace a good wool waste, something with a good staple, hence the demand and consequent high value. Fine knitted stock, commonly called Berlins, is at an enormous price. Being all wool and clean, it is sought after and has advanced fully four times its old figure. But the course of old merino stock has surpassed anything known in the trade. Month after month prices have risen until today a good standard packing is worth six times the figure paid in 1914. When sorted into shades some are even more than that, and those of a self-color, owing to the dearness of dyes, are at an enormous premium. In fact, the old stock sells for more than the new when in the mixed state, something which has never been known in the trade before. Probably it is the shortage of merino stock that accounts for these high figures. During the war the production was practically at a standstill and the main source of supply, France, was cut off. Coarser materials took their place and until the supply of the finished article is extended we fear prices will be on the up grade. This class of material, in fact, all fine stock, is badly wanted for export as well as for the home trade, and one outbids the other in order to get supplied with what he needs.

Hard Stock Prices

In hard stock prices have until quite recently been away down; mixed skirted has declined fully 30 per cent.; fine dark hards fully 20, while coarse dark and light skirted at one time were down at least 50 per cent. The call for all kinds of low grade stock simply went out. Recently, however, prices have moved up a little, owing to speculation, to confidence in the immediate future, and to a general scarcity of stock. Serges in blues and blacks are very high, especially the latter, owing to the heavy cost in dyeing. Black today costs 7 cents, compared with 2 cents prior to the war, and if stock is a good sound color it is sold at sight. Serges in shades sell well and are scarce, but darks are neglected, are away down in value, having slumped fully 40 per cent.

In mixed knitted stock prices are now advancing. Owing to the fact that fines are so badly wanted, high prices are paid. When the Government orders for blankets were terminated this class of stock had a heavy set back. Local mills did not then employ it and hugh stocks are on hand today, some of which have cost graders a big price.

Export Trade

The export trade in rags and shoddies during the year has taken a turn for the better. Early in the year all restrictions were withdrawn and large quantities which had been held up were allowed to be shipped, and today shoddies are being freely exported to certain markets. Holland and Scandinavia are the chief operators, with France and Belgium following them. From America inquiries are at hand, and were it not for certain irksome conditions a good trade might be done in qualities that are not produced on your side with benefit to all concerned. Other foreign markets are feeling their way very slowly, but were it not for the adverse exchanges now ruling in certain countries abroad the export business in rags would be enormous, with higher prices than ever, as their factories are pining for a good wool substitute, since they are not able to pay the extreme prices of wool as they are today.

The Future

If the manufacturer expresses himself confidently as to the future, the raw material man is entitled to do so, and he does. On every hand there is the utmost confidence and one hears on all sides that we shall have higher prices early in the new year. It must be admitted there is every ground for hope. Supplies are dwindling; new markets are opening out; old markets are clamoring for supplies; mills are anxious to cover their requirements and dare not risk the future, and it is a well known fact that a good many mills have bought to cover needs for the next six months. The difficulty is to secure goods. Competition is keen; holders are diffident; no one will book ahead; the instruction is to buy and take away; help is scarce; workers prefer the mill to the store, although the wages are almost three times those paid prior to the war; stores are difficult to secure and almost impossible to build; transit is slow and difficult and becoming more and more expensive; stock is lost, and claims are the order of the day.

From a financial point of view the year has been the best ever known. Failures have been extremely few and have been limited to the smaller firms who were badly hit in the hard stock trade. For the rest, taxes are high; expenses are three times as much as formerly, but generally speaking, the period through which the trade has passed has done it good. It has opened the minds of the authorities and the public generally that it is an essential trade, a useful one, in fact, a necessary one. It has borne its part during the war in many ways and has helped to clothe nearly thirty million men and supplied them with protection against the elements, and then their cast offs have been carefully dealt with until they have brought into the treasury millions of pounds sterling. In short, the trade has really done its bit and is proud of it.

Reluctant Strength in Wool Substitutes

Regarded as Profitable Year and Recording Large Volume of Business

THE year 1919 goes down in the history of the reworked wool industry as one showing a larger volume of business than ever, large factors asserting that, despite a strong campaign of opposition to recovered fibers in woolen textiles, the turnover in pounds exceeds 1918. At first consideration this would seem to be contrary to general post-war tendencies. With the return of virgin wool supplies to general manufactures and with extensive movements under way to use new wool and wastes to the exclusion of recovered fibers, often engendered by resourcefulness and necessity, the ordinary conception would be that only dullness and narrowness was left to the recovering industry. The enormous output of woolens attempted to meet the pent-up demands of the world, however, worked a peculiar activity in clips and old woolen rags. A big exporting demand began early and prevails to the present, providing one of the factors that account for the strength of the market at the close of the year. There were other strong factors, of course, associated with the peculiar ups and downs of the general manufacturing year. Thus it happens, that, notwithstanding the fact that sterling exchange went more than a dollar off normal, it has been possible, even in recent weeks, to land rags in Liverpool at less than English sellers were getting. Unions, worsteds, serges and flannels bulked large in these export sales.

Government's Quick Withdrawal

The promptness with which the Government dropped control of the rag business Dec. 31, 1918, is one of the notable things that comes up in review. It placed this division of woolen interests on its own feet in the post-war business world. Nothing untoward has happened in the meantime and the main significance is not so much within that division itself. It has shown advances, and features of stability, in what is generally admitted as having been a hard business year, that makes other divisions rather envious that the Government was not so prompt in discarding the features of control that still apply to them.

In the fore part of the year, a few months saw rapid disposition made of Government melton overcoating clips, worsted suiting clips, flannels and cotton carded shirting clips, cotton warp worsted shirting, mixed wool clips, cotton warp clips of mixed fibers, colors and grades, cotton warp jerkin linings and punching seams. In the hurry to close up this end of the business, the Government was, it now appears from the monetary point of view, well advised in resisting certain low-priced ideas which for a time prevailed.

Better Clip Prices Obtained

The timidity, or whatever it was that made the earlier bids lower than war levels, yet higher than pre-war values, soon disappeared and is by this time almost swallowed up and forgotten. Prices turned high and went higher. The advances ranged from 4 to 11 cents a pound. In overcoatings, for instance, 17 cents was established as a basic price as against former offerings of 13 cents; in later sales the price went to more

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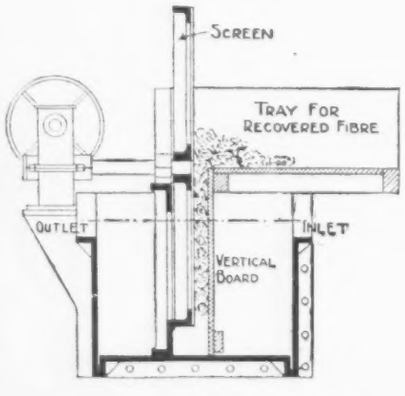

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than 18 cents a pound. It is to be noted that overcoating clips fell below the costs allowed by the Government base, which took them in at 30 cents a pound, but in worsted suitings, wool suitings and a few other specialties, the Government obtained better prices than it paid, being enabled thus to make a showing on closing out at a net profit of $6,250,000 on the Base Sorting Plant. For instance, the Government allowances on taking in of wool suiting and worsted suiting clips were respectively 32 cents and 35 cents a pound.

Increases and Summary

It was the wool suitings at the disposal sales which made a showing of an increased valuation of 11 cents a pound, scoring at 33¼ cents a pound on the first revised bidding, or 1¼ cent above cost, and worsted suiting clips scoring 37¼ cents a pound, or 2¼ cents a pound over costs. In this connection the summary of the bids on the final lots before closing the station, in April, is interesting as showing the higher range made firm. The summary from the TEXTILE WORLD market report of April 12 follows. "On melton overcoatings the prices ranged variously up to 18.06 cents per pound, many fractional bids ranging through 15, 16, 17 cents. The prices offered on worsted suitings ranged from 32 to 37 cents; wool suitings from 23½ to 32¼ cents; cotton warp worsted shirtings from 14 to 22 cents; mixed wool clips 11½ to 15½ cents; mixed cotton warp clips 5 to 8 cents; punching seams 9½ to 15 cents; cotton warp jerkin linings from 5¼ to 10½ cents a pound."

Extremes in New Clips

Naturally, therefore, it was an unusually big year in new woolen clips and it has been commented on frequently, in dealer circles especially, how speedily the O. D. accumulations were absorbed. It is recalled, for instance, that the middle of the year had not been reached when they practically ceased to be a trading factor, and were seldom referred to thereafter. The requirements they filled are, of course, another story, belonging more strictly in surveys of consumption and production.

The balance of the market in new clips was much dulled for the year, of course, by the bulk of O. D. clips that were in the processes the greater part of the time. It was not until quite near the close of the year that the quality of varied sorts of new woolen clips began to improve, for in the long months of the war activities the output of civilian clips ran down to a very low point. Much of the comparative price weakness in them—that is, the disposition shown to move upward less slowly than graded old woolen rags, for instance—is ascribed in the trade to the long absence of better edge clips. Recently, with cuttings accumulating in both men's wear and women's wear from productions so largely made up of fine virgin wool, a new tone arrived in woolen clips, the demand increased and it is understood some of the lost ground was rapidly made up.

Slow Recovery in Old Stock

The old woolen rag market, owing to several causes, was also slow in taking on a firm aspect. For months it was slow and inactive. As mill requirements were at no time unusually pressing, exporting claimed an especial amount of attention, hence it is on the surprisingly large amount of shipments made overseas that the bulk gain in the merchandising of wool substitute materials is so confidently asserted in the trade. Record prices in this, as well as the domestic end of the trade, readily account for swollen figures in the periodical commerce reports. Cargo rates being high, and fluctuating violently, were at times a deterrent to a smooth and steady flow of materials overseas; the drop, amounting almost to a collapse, in sterling exchange, singularly enough, proved only a temporary embarrassment. It is difficult to arrive at any exact ideas as to just what was done in the first flush of export connections. It is known that whereas formerly only the cheapest grades of woolen rags, old or new, were shipped for export, the takings abroad in 1919 increased, and that better grades were included in export movements, but to how great an extent this sort of thing developed does not appear on the face of the trade. Dealers were very guarded about what they did and where they found outlets, lest competitors profit at their expense.

Late in January mixed softs were weak around 15 cents and rough cloth was around 5 cents. Higher figures came about July 1 and consequently graded rags moved up with the rises recorded on basal collections. Blue worsteds show appreciations of about 45 per cent., fine light merinos 35 per cent., and blue serges 20 per cent.

Avoidances and Bleaching

From the consumptive standpoint, the tendency to use virgin raw stock of the lower sorts was the most marked. On the other hand, bleaching was more resorted to. Light stock in rags being scarce resulted in a more active demand for favored grades of dark stock that were susceptible to bleaching and redyeing. The extremes that came to notice throughout the year had the peculiarity of being extremes that did not meet. The gap increased, instead of diminished, and is still widening. Fiber mills were not running so heavily in the early part of the year, and this was due as much as anything to the extremely dubious outlook in the piece goods trade. It was rather generally expected that it would be a decided worsted year, and as worsteds offer no great opportunity to graders of rags or reclaimers of fibers the early outlook was not by any means rosy. While the prospect was poor when a rush to worsteds seemed imminent in the forward seasons, developments in various processes and in the spinning trade brought out an entirely different result. Thus the times produced a big year in overcoatings and other wool goods employing recovered fibers. Mills catering to manufacturers of boys' and children's clothing kept especially busy. In a large measure this was the special situation that the year produced and was practically the situation when the year closed.

Relation to Pure Fabric Movement

The outlook for the current year is more or less affected by the developments of the year that has just closed. Viewed from this background of experiences, and from that angle alone, without venturing forecasts which depend solely upon anything in the nature of prophecy, the outlook appears considerably improved. The big issue before the substitute industry as a whole is the proposed pure fabric law. At the outset of agitation to obtain the enactment of such a law, the rag and fiber industry takes a position of opposition to it on the grounds that the recovery of fibers is essential and that there is danger of being placed in the position of being an outlawed industry under a misunderstanding of the actual worth and rightful place of reworked wool. At various meetings of dealers on a co-operative basis, it was the early attitude that clothiers could not be stampeded to virgin wool cloths, that the virgin wool supply of the world alone would not clothe the world, and that the agitation would right itself as the supplies of raw stock become equalized and better distributed. It was felt, in other words, that the differences of opinion within the cloth industry could be settled as a technical question within the industry, without resort to the enormous and difficult task of educating the consuming public on the technical points involved. On the proposition of percentage marking of fabrics, there is basically little, if any, objection, for influential factors in the trade are firm advocates of marketing goods for what they are. Latterly the co-operative elements have been working steadily on a campaign of education on a platform that is believed to have been fairly initiated, and the results are awaited with interest in the course of the legislative campaign impending.

Standard Warehouse Management

(Continued from page 226)

For many mills the trailer system is not adaptable. In such cases usually several trucks are used for the movement of materials and their scheduling is similar to that of the trailer system. The truck helper is eliminated, and, instead, men should be stationed at the railway depot to load the trucks in the shortest possible time, which time, however, should not be left to their judgment but determined by actual time studies. Similarly, the running time of the truck should be determined by time tests and the trucks dispatched from the warehouse at such intervals that while one truck is under way the other is being loaded at the depot, and, if more than two trucks are required, the third truck is on the way back to the warehouse and the fourth truck is unloaded at the warehouse.

The scheduling of this work can be accomplished in the best manner by the use of a Warehouse and Shipping Routing Chart, illustrated in Figure 2. In this chart a section is provided for each truck and for each gang. The working time is indicated in fifteen minute intervals, and the warehouse foremen schedules the work of each truck or gang as far ahead as possible.

The standard time for the loading and delivery should be prepared in a table form. With the assistance of such a table, the overseer can schedule the work with reasonable accuracy. Figure 3 illustrates the construction and arrangement of such schedules.

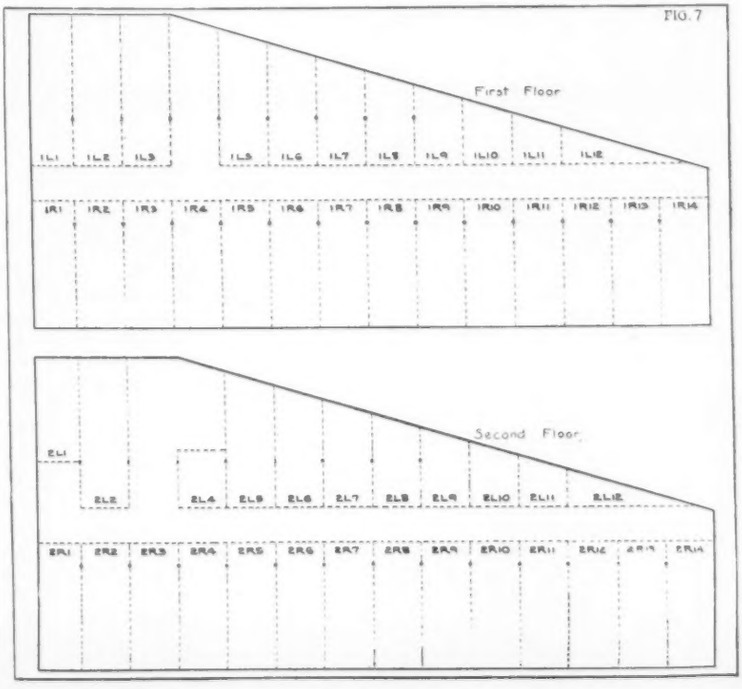
The truck drivers should be provided with Daily Truck Schedules, shown in Figure 4, arranged in such a manner that for each trip the estimated time is recorded by the warehouse foreman while the truck driver records the actual time.

The Problem of Handling at the Warehouse

Within the last few years enormous progress has been made in the development of mechanical warehouse equipment and its adaption to the textile industry. Automatic loading and unloading machinery have replaced the old-fashioned elevators and whip-hoists. Such methods of handling are slow and require much labor for handling. The savings effected by the installation of a modern hauling equipment will soon repay for the expense of the installation by the reduction of the warehouse gang. Such mechanical improvements, however, solve only half of the problem. Without the standardization of the warehousing operations full efficiency of the warehouse gang cannot be realized.

The best method of standardization is the preparation of a graphic chart showing the present method, and then, with these facts in mind, the development of an improved method. Such procedures are illustrated in Figures 5 and 6. In Figure 5 the method used prior to the standardization required a travel of the materials twice as much as after standardization. In the case illustrated in Figure 6, before the standardization of the warehousing

FIG. 7



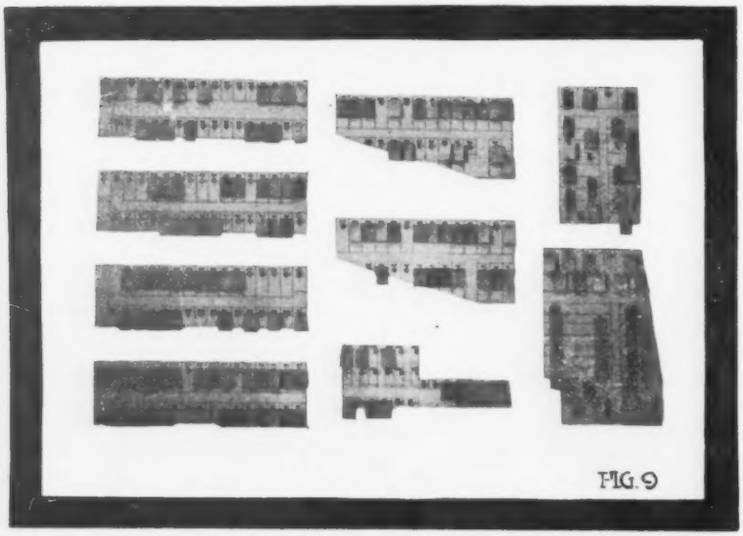
operations, the warehouse had an old-fashioned elevator used for receiving and shipping. There was always a controversy as to which gang should have the preference until the management decided that shipping was of greater importance; therefore, all cotton bales received were put into a temporary storage until such time as the elevator was free for their use. This required a double handling and a considerable increase of warehousing cost. As a solution, an automatic loading device was proposed, to be used for the cotton bales exclusively.

TABLE OF SPACE REQUIREMENTS FOR STANDARD BALES OF WOOL

To determine the location for a given number of bales look up the next highest "number of units" under the proper grade. Select any available section listed opposite this number.

Grade.	No. of Units	Section.	Piling Instructions.
Native Bags	36	W1L3 to 10 & 12 to 14. W135R16. W235L2 to 14	Header if over 20
	36	W5R2 to 14	Header if over 28
	42	W135L16	Three and one
	48	W1235R1	Three and one
	55	H12R1	Header if over 51
	55	H1L1	Header if over 54
	65	H12R2 to 14	Three and one
	70	W135R17	Ends out
	78	H1L2 and 3. H2L2	Three and one
	85	W1L11	One end—Two high
Montevideo	8	W13R16. W8R2 to 16. W1L3 to 10 & 12 to 14.	One end—Two high
	20	W3 5L3 to 14	
	24	W1235R1	
	26	W1235L15	
	32	W123R2 to 15. W13R17	
Australia	30	H12L11 & 12	
	40	H12L10. H2L4.	
	45	W135R16. W1L3 to 10 & 12 to 14	
	45	W235L3 to 14. W5R2 to 15 H12L9	
	60	W1235R1. W1235L15. H12L8	
	70	H12L7	
	75	W123R2 to 15. W13R17	
	80	H12L6	
	90	H12L5	
California	42	W1L3 to 10 & 12 to 14. W5R2 to 15. W235L3 to 14	Three wide
	1	W1235R1	
	57	W1235L15	
	60	W123R2 to 15. W135R17	
Cape	50	W1235R1. W135R16. W1L3 to 10 & 12 to 14	Two wide
	50	W235L3 to 14. W5R2 to 15	
	56	W1235L15	
	70	W123R2 to 15. W13R17	

FIG. 8



The trucking of the bales from the freight cars or platforms to the scales, and the elevator should be standardized and the work arranged in such a manner that no more men are assigned to the trucking of the bales than necessary to insure a continuous flow at the scales. The bales should be placed upon the trucks in such a manner that the cutting of the bands is possible without taking the bale off the truck, and the sampler should be provided with a table upon which the samples may be arranged conveniently. It is surprising what a reduction of the warehouse gang is possible by such careful standardization, reducing at the same time the physical effort of the employes.

Warehouse records should show the location of the various bales, so that any bale may be located without waste of time. The warehouse locations should be symbolized in such a manner than anyone familiar with the method of symbolization can locate any bale at once. It is desirable that the warehouse foreman is provided with a chart showing the various floors of the warehouse divided and symbolized. Figure 7 illustrates such chart showing the various location symbols.

Bags Need Standardizing

There is another feature of warehouse control that needs consideration, especially in the woolen industry: The size and the weight of the wool bags and bales vary according to their origin. For this reason it is extremely difficult to utilize all the floor space to best advantage, unless standard location tables are prepared showing how many bales of a certain type may be placed in one section. Such standard table is illustrated in Figure 8. A warehouse foreman in possession of such a table can direct the warehouse gang from his office and eliminate the waste of time caused by looking for a suitable location for a lot of wool. In large warehouses it is desirable to have a Warehouse Control Board, constructed as shown in Figure 9. Such control board represents the floor plans of the various warehouses, provided with the space symbols. When a lot of wool is placed in a section a tag is attached to the corresponding section on the control board showing the lot number, grade and quantity. To indicate to what extent the lot utilizes the space, small colored rings are put on the tags; the colors designate the floor space the lot occupies in a section. With the assistance of such control board the management of a warehouse and the direction of the gang can be performed from a centralized point, which is the ideal of a modern management.

Japan's Expansion of Cotton Spindleage

Delayed Delivery of Machinery Retards Increase—Now Making Big Profits and Buying Old Machinery

If Japanese cotton mills had been able to obtain deliveries of all machinery ordered from English and United States builders since 1914 their equipment would now aggregate about 5,000,000 spindles. The actual spindleage, however, is not over 3,250,000, no more than 450,000 of the 1,600,000 spindles, contracted for in England and this country, having been delivered up to last summer. Since this article was written, about six months ago, Japanese, as well as domestic and European spinners, have awakened to the fact that the world's cotton spinning machinery will be inadequate to meet world demands for some years, and Japanese spinners are not only offering big premiums for delivery of machinery under contract, but are buying old machinery in this country and possibly in England. Their takings of such machinery in this country alone exceed 100,000 spindles. They no longer have hopes of obtaining 1,000,000 spindles from England in 1920, as half of that country's annual production of about 3,000,000 spindles is promised to France and Belgium, and Japan will be very fortunate to get even 500,000 spindles this year. Within the last six months the demand for Japanese cotton yarn and cloth has increased enormously, despite the Chinese boycott, and her mills are again making phenomenal profits.

A SERIES of articles that appeared recently in the Japanese technical journal, *Chugwai Shogyo Shimbun*, on the present status of the Japanese cotton spinning industry bring out certain features that will be found of unusual interest to American manufacturers in view of the active demand from that country for both new and old cotton machinery.

Owing to the great rise in the market value of shares during the war, most spinning companies in Japan increased their capital once, or, in some cases, even twice, and the new shares so offered were held at a high premium. At the end of 1914 the total registered capital of the cotton spinning companies throughout Japan was 109,676,000 yen ($54,618,648), while at the end of 1918 it stood at 176,202,000 yen, an increase of 66,526,000 yen. This figure represents, however, only the increase in the total capital of companies in existence before the war.

If other concerns still in course of organization, and those which added cotton spinning to the manufacture of mousseline, etc., be included, the number of new companies organized subsequent to the outbreak of war reaches a total of 30 or more, with an aggregate capital of about 70,000,000 yen.

Increase of Plant Delayed

In the course of the three years 1915-17, orders for 1,270,000 spindles were placed in England, but owing to the difficulty of obtaining deliveries on these orders, 200,000 spindles were ordered from the United States in the middle of 1916. The actual increase in the number of spindles in Japan during the four years from the beginning of 1915 to the end of 1916 was only 453,000. At the end of 1914 the number of spindles in Japan was 2,667,000, and it stands now at over 3,227,000. The projected increase of some 1,550,000 spindles would have brought the total number to-day up to 4,700,000. It must be remembered in this connection that Japanese machinery runs day and night.

Effect of Shortage on Production

The average output of 153,000 bales of yarn per month maintained during 1918 was continued during the first five months of 1919. Had the estimated increase in the number of spindles taken place the monthly output would have been increased by one-quarter or one-third. That is, it would have risen from an average of 153,000 bales to a figure between 180,000 and 190,000.

The existing prosperity of the industry is due to a heavy demand for export goods and an equally heavy demand at home, enhanced by the present comparative shortage of output caused by labor difficulties and the non-arrival of machinery. One consequence of this is that average profits are now between 30 and 100 yen per bale of No. 18 yarn, whereas, before the war profits on similar bales averaged only 8 to 12 yen, i. e., $3.98 to $5.97.

If the proposed increase in the number of spindles had been successfully carried out and an additional output of 200,000 bales per month had been secured, the spinners would not have been able to make such enormous profits. According to one view, had the full increase in spindles been executed it would have involved a curtailment of work now and would have thrown the new spinning companies into the same predicament as that in which shipbuilding and chemical firms are now involved. However, the older companies would have been in a better position. Such being the case, the spinners' failure to obtain spinning machinery may have proved of great advantage to them.

Amalgamation of Spinning Companies

Before and even during the war the question of amalgamation of various concerns came up from time to time, but the general prosperity of the industry has rendered working operations comparatively easy and the "pride and self-confidence of the different companies has increased in proportion." Amalgamation between the old-established companies is unlikely unless they happen to belong to the same group of capitalists. Any amalgamations which may occur in the future, however, will probably be between an old-established company and one which commenced business during the war.

The writer states that the present position is as follows: Large extensions have been made by the prosperous spinning companies to install the spindles on order in England and the United States. England, however, seems more inclined to export to Belgium and France than to other countries in view of the great losses suffered by the former during the war. A second obstacle to the importation by Japan of spindles from England is that the large bulk of orders from Japan was placed in the three years 1915-17, when prices were much lower than they are to-day. Most of the houses in Japan handling this import business seem to have consented readily to an increase ranging from 30 to 50 per cent. By this means the difficulty of importing British spindles has been met to some extent, and during the current year about 100,000 spindles will be forthcoming from England, while a further 1,000,000 spindles will probably be imported during 1920.

The position may therefore be stated in round figures as follows: Total number of spindles ordered during the war: From England 1,300,000; from America 300,000; total arrivals during war period 450,000 (300,000 American and 150,000 British). To arrive during 1919 100,000. To arrive during 1920 1,000,000.

Japan's Operations in China

The following Japanese companies are already operating cotton mills in China: The Naigwai-wata Kaisha, the Shanghai Boseki Kaisha, and the Mikkwa Boseki Kaisha (into which the Hugyuan Spinning Company was recently amalgamated by Japanese interests). During the war various rumors were in circulation that other Chinese companies were going to be bought up by Japanese interests, but the high price asked by the Chinese owners, and difficulties of importing machinery seem to have stood in the way. The article states that the machinery installed in the concerns by the Chinese was as a rule old. Further, it seems to have been the impression that the Chinese owners were endeavoring to sell off old machinery at a high price to Japanese buyers with the intention of getting newer and cheaper machinery after the war, which would place them in an advantageous position. Accordingly, the only negotiations which succeeded were those for the sale of the Hugyuan Spinning Company above mentioned.

Japanese Textile Labor Conditions

The hours for both day and night work are from 6 to 6, rest periods being as follows: Fifteen minutes between 9 and 9.15; 30 minutes from 12 to 12.30; 15 minutes from 3.15 to 3.30. Day and night shifts are changed once every week or ten days, when 24 hours complete rest is given. The prohibition of night work is to be enforced from September, 1931, under the Japanese Factory Law, and work between 10 p.m. and 4 a.m. will be prohibited, thus leaving 18 hours to be divided between the two shifts of 8½ hours (9 hours each), less 30 minutes, which the law requires to be left for meals and rest.

The restriction on hours, under the International Labor Regulations, will not differ much from the working hours under the Japanese Factory Law, when the regulations concerning night work come into effect, provided, that is, the eight hours stipulated by the International regulations include the time required for meals and rest.

The outlook from the Japanese employers' point of view is, according to the writer, very far from hopeful. At present 22 hours' work can be done by two sets of operatives, and if this is to be reduced to 16 hours' work by the same number of operatives (even though methods for increasing efficiency may be introduced), the production of cotton yarn must go down to about 70 per cent. of the present output.

Moreover, even if wages remain at their present rate the cost of production per day will be considerably increased, and there is very little likelihood that wages will go down in view of present demands of labor on all sides. The writer concludes by declaring that the eight-hour system has been tried by various textile companies in Japan with unsatisfactory results in the case of mills near large cities. Operatives are attracted by good offers of employment after the working hours in the mills are over. In the country districts, on the other hand, the results of the eight-hour day are stated to be highly satisfactory.

How Textile Exports Increased

A considerable effort has been made to develop an export trade in woolen goods, of which the manufacture for army purposes greatly increased during the war. Mousseline delaine now figures at $1,000,000 for four months, against $100,000 for the whole year in 1914. In the same way there is now nine times the export of woolen cloth and serges, and five times that of woolen and cotton blankets in four months than in the whole year of 1914.

Cotton goods have shown a development still more remarkable. Against a total value of $17,500,000 for the year 1914, we find an export for the first four months of 1919 of $47,500,000. In silk tissue the rise is not so remarkable, but here, too, four months exports are now equal to those of a whole year before the war. It is surprising in these circumstances that raw and spun silk should also have doubled. The cotton yarn export trade has also increased greatly, but not so greatly in proportion as the manufactured cotton trade.

While Japan has, on the whole, weathered the peace slump better than anybody expected that she would, every class in the land appears to be awake to the fact that drastic reforms are needed if the country is to retain the position won during the war.

While business is still remunerative, and transition therefore easy, great efforts are being made. The official classes were awakened to this fact by the humiliation of having to plead for exceptional treatment when international labor legislation was under discussion at Paris, and this just after the struggle for racial equality!

Labor unions are coming rapidly into existence, in spite of being illegal. It has become simply impossible to enforce the law, and the officials do not want to. The manufacturers themselves are most backward, but even they are moving. One the other day, instead of giving a bonus out of his enormous profits, gave a new cotton mill, making the employes the shareholders, almost a voluntary surrender to Bolshevism in industry! All these are hopeful signs. The development they portend makes Japan a keener competitor in manufacture but it also makes her a better customer. The Asiatic artisan with subsistence requirements as simple as those of a horse will soon be no more.

Narrow Fabric Co., Reading, Pa.

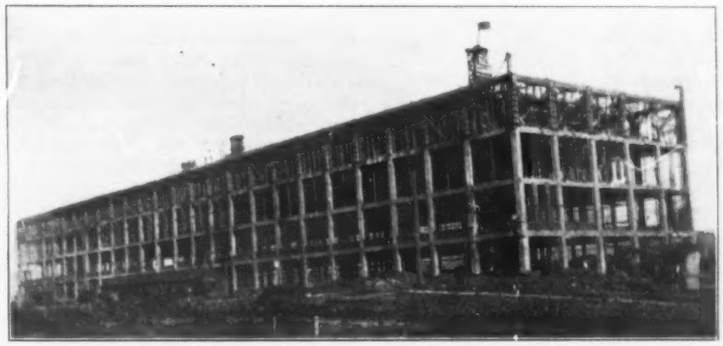
New Mill Gives 30 to 50 Per Cent. Increase in Production

WITH characteristic energy and efficiency, the Narrow Fabric Company, Reading, Pa., which with the Textile Machine Works and the Berkshire Knitting Mills constitutes the Wyomissing Industries, Wyomissing, has completed a large building operation that gives it a big modern new home to meet increased space requirements.

The work on the new plant started on August 4, and on December 24, four months and twenty days later, the building was completed and turned over to the company. It was erected by Stone & Webster, New York and Boston, with A. Mayer, of Reading, as architect. The cost of the new building is approximately $500,000, it is stated. The type of construction is reinforced concrete, brick spandrel walls and trims.

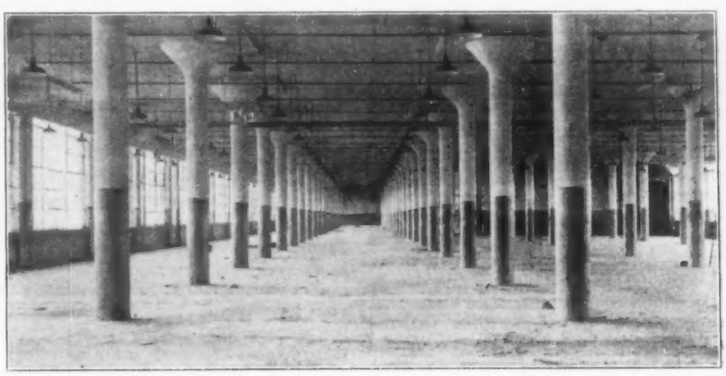
The Narrow Fabric Company moved from one building to another as it outgrew each successive location, and in 1914 occupied a large new factory which was expected to meet all demands for space for a long time to come. The "long time" was shortened considerably by a rate of growth which has been truly phenomenal, and now the company has three times its former floor space. Its products were greatly in demand during the war, and the plant has been running day and night for several years. Its products are Cluny laces, rickrack knit work, garter and arm band materials, elastics, hat cords, breeches and legging laces, leg and seam braids, shoe laces, gas mask webbing, and cords and webbing used in many trades. The employes number nearly nine hundred.

The new building is 496 feet long, 90 feet wide and 75 feet in height, with four stories and basement. It contains 187,000 square feet of floor space, five acres in all, 3,000,000 cubic feet contents, and is lighted in daytime by glass measuring half an acre in all. At night and on cloudy days, illumination is provided by 3,500 electric lamps on direct lighting system. Emergency, watchman's and exit lighting systems are also installed. Interior partitions are of brick, tile and oak. The roof is 5-ply Barrett specification, with copper flashing. Stairs are of concrete with pipe railings. The building is heated by low pressure vacuum system, with automatic temperature control. Elevator service is provided by two Otis 4,000-pound elevators, and there are complete plant telephone and signal systems.



NEW MILL OF NARROW FABRIC CO., READING, PA., AS IT APPEARED DURING CONSTRUCTION

In erecting the structure there were used 7,000 tons of sand, 10,800 tons of stone, 600,000 brick, 500,000 feet of lumber for forms, etc., 20,000 square feet of glass, 600 tons of steel and 64,000 bags of cement, not to mention over 500 feet of service tunnel to connect with a central heating, lighting and general service plant, and the excavation of 8,600 cubic yards of rock and clay for the foundations.



INTERIOR VIEW, FOURTH FLOOR, NEW MILL OF NARROW FABRIC CO., READING, PA.

Novel Feature of Moving

A novel feature of the moving from the old building to the new was the construction of a temporary bridge spanning 500 feet, adjustable so as to run from any floor in one building to any floor in the other, over which equipment, stock, etc., were moved quickly and with

a minimum expenditure of time and labor.

With the Reading plant, manufacturing chiefly Cluny lace, established a year ago to relieve congestion in the Wyomissing building, the company now has 227,000 square feet of floor space. The buildings have every modern convenience in sanitation and comfort, as well as the most modern manufacturing equipment. The plant has also an excellent location, overlooking the city of Reading and the intervening Schuylkill River.

A Real Profit-Sharing Plan

Bettering the Workers' Condition in a Practical Way

By *Warfield Webb*

WHAT can be done by manufacturers in order that both interest and better work can be counted on from the employes? This is one of the most vital questions today before the average manufacturer. He has other problems to solve, but these are all to a greater or lesser degree dependent upon this one main question. And this is plain when the matter is given unbiased consideration. The increased output of a better commodity has as much or more than all other elements to do with better business. Sales, and these are so vitally dependent upon the foregoing as to make them paramount in importance, can be added to, provided some plan of action that will prove effectual has been developed.

If you, as a manufacturer, can inject, with a spirit of active co-operation, a real interest in your plant and its output by your employes, you can feel without doubt that the results will be most noteworthy. You will then have solved the problem of where and how to gain business and with this increase profits, too, that can make your future a stable one. This is not an impossible problem either, as might be thought likely by some, for it has been accomplished and the way is not hard if we are willing to apply the remedy. But first we must come to the complete realization that the employe, as an individual, is not a machine. Until this is fully appreciated there can be no way open to make a stable or real improvement.

Dependence Upon the Operative

Too many of us forget in our eagerness to gain a certain goal that we are altogether dependent upon the worker as a vital asset to our success. There is a feeling that somehow after all the employe is but a kind of human machine and that when he plays out we can replace him with another, and it may be a better type too. But here is where such men make a serious mistake. The human machine is not to be classed or looked upon as a piece of mechanism. The idea must be rooted out of the mind before we can hope for a better effort. When this has been done let it also be understood that the increased wage that might be paid to the individual will not always solve the help problem. Wages are an attraction to every worker. There is a desire to gain more for the time and labor expended by this class of people as much as by you, who are eager to increase your profits. But there is something even higher than mere wages that will be found a still greater incentive, and this will be the foundation upon which you can and upon which you must build your business in order to succeed with a degree of assurance that would encourage you to greater efforts.

The man or woman who has only his or her weekly pay envelope to look forward to as the remuneration for the time and service given, cannot take the same interest in the work that will be possible where there is another kind of incentive to keep up that one hundred per cent. interest and desire to excel. There should be other means and practical helps that will be of value in this way. There have been a number of such tried out and while they have been helps, depending upon the nature of the plan, there has been only a limited number that have really been of value. There must arise a feeling of co-operative effort along this line. There must be a mutual desire to progress, and this cannot be had without the matter being given a full and clear understanding.

Bonus System Partial Help

The idea is frequently held that a bonus system will help. This is a help and in some instances it has worked out fairly well, but it does not go far enough. While the idea of the bonus system is good, being based on the wages paid during the term specified, still it is somewhat in the nature of a gift and therefore lacks something of the merit system or of the profit-sharing idea, and this is after all the most satisfactory of all plans for remuneration for service rendered.

If you are willing to share a portion of your annual profits with your employes you will have laid the foundation for real achievement. You might argue that a bonus is a system of profit-sharing, but it is lacking in that different kind of reward that can be made possible by a real system of profit sharing. This can be done, for it has been tried out very successfully by one large organization, and if one company can make it a profitable idea why not others when the effort has been made? If one large manufacturing company can adopt a new plan and make it pay for years another can surely do as much where the idea has been given due consideration.

Real Profit Sharing

If you contemplate this plan let it be presupposed that you are paying a wage commensurate with the demands of the employe based upon the conditions existing in the world today. That is if you are now paying a living wage you have made the very first effort toward the final goal. If you are not then you will have to begin at once to do so and your plan can be made effective. When this has been done, you can follow it up with a system of profit sharing that will mean much to the employes and much to yourself.

To show just what effect this had on the employes of the plant in question it can be said that there are today no bosses in this plant. Every worker is in a measure a "boss," for he readily understands that if he fails to do his utmost for the upbuilding of the industry he is injuring himself as well as his employer, and is robbing himself of profits that he would otherwise earn. So there is not the same need for a man or men to keep an eye on the work that is done by these employes. The very fact that shirking their obligations causes them to suffer losses, not in wages, but in actual profits lost, keeps them on the alert to overcome this lost motion.

Details of Plan

This plant began its work by paying a living wage to every individual in the establishment from the president down to the least paid employe in the whole organization, and with this as an incentive they were willing to do more with a greater goal to attain. The added incentive was a sharing at the close of the year with the others—the stockholders, in the profits of the plant. This is reached in a very simple way by paying first a living wage to the capital that has actually been invested. This is after all but the market price of money, or in other words, the usual rate of interest paid on investment; then the rest of the profits are divided equally among the stockholders and the employes. This is certainly a fair way to arrive at the question of profit sharing. It gives every individual connected with the company, either as a stockholder or employe, a share in the earnings.

It might be inferred that this would not be agreeable to the stockholders. They might feel that as investors in the company they are entitled to a larger sum on their investment. However, when it is shown, as was done in this instance, that the output of the plant was not only larger, but the quality of the workmanship and materials was also much bettered, there is no cause for complaint. The orders increased to such an extent that the company surpassed all of its competitors and thereby made possible even larger dividends for both parties than was possible previous to the adoption of the plan. So the personal equation was made possible and the net profits were actually larger than had been before the installation of the plan.

The stockholders are given a share of the profits equal to the amount of money invested and the wage earners according to the salary paid to them. So every one is satisfied. The company realizes that the men are human assets and not machines, and the reciprocation is given that makes every employe a still greater help toward increased production and better quality. The matter has been solved here in a way that has proven its wisdom, justice and fairness to all. The co-operative spirit is here in full force and the results speak most eloquently for the plan and its admirable points. It is one way of solving the labor question and a practical help of the sensible kind.

Equal Profit Sharing With Employes

Novel Plan of Harvard Knitting Mills

For the purpose of establishing more cordial and profitable relations on a co-operative plan and to increase among the employes their interest in the welfare and prosperity of the business, Winship, Boit & Co. have put into operation a profit-sharing plan which, apparently, marks a new epoch in the textile industry of this country. Many plans are being put forward at the present time to alleviate prevailing unrest among textile and other employes, but the Harvard Knitting Mills plan seems to be the most radical of any that have yet appeared. In the operation of the new project, all employes of the mills are virtually taken into the business as partners, and one-half the net profits of the concern annually are to be divided on the basis of wages and salaries paid. One-half the profits allocated to the employes are retained by the mill, which issues interest bearing certificates for the balance. This plan, while apparently new in this country, has been in operation in somewhat modified form in Holland, England and Germany for several years past. The Ziess Optical Works in Germany has been running on a similar proposition, but it is understood that results have not been quite so favorable as was anticipated.

THE Harvard Knitting Mills, Wakefield, Mass., founded in 1889 by Charles N. Winship and Elizabeth E. Boit, who together control the business at the present time, has introduced the latest and most novel proposition for meeting the general industrial unrest of the day by admitting its employes to a limited partnership in the concern and sharing equally with them annually net profits made. The plan has been under consideration for some time and now, legally completed, is to be put into immediate operation.

For the past three years the mills have granted a 15 per cent. bonus to all employes. The amount dispersed for the year just ended approximated $75,000. The bonus system will now cease and the equal profit-sharing plan will be adopted, tentatively, for a period of two years, after which time if it appears that the agreement has not fulfilled its purpose the proprietors may abandon the project.

As to the motive underlying the project, Mr. Winship stated that "this form of profit-sharing is original with us and is entirely voluntary. Our employes were not restless; they have been well satisfied with the bonuses and increase in wages made in the past three years; and we believe that as the full significance of the new plan is understood our employe-partners will realize that its benefits to them and to us are practically limitless."

Main Features of Plan

The profit-sharing plan as outlined is, in brief, as follows: Under the terms of the agreement between the firm and its employe-partners the employes and the firm share equally in the profits or losses of the business and the agreement is equivalent to giving the employes a half interest in the net profit on the products of the Harvard Knitting Mills. All employes who have been on the payroll of the company for one year prior to January 1, 1920, are eligible to co-partnership. To begin the plan employe-partners receive the first year 1920 certificates of interest in the firm to the extent of 20 per cent. of their earnings of 1919 and begin to participate in the profit-sharing after the 1920 profits are ascertained. The net profits of the business will be determined at the end of the year by the regular accountants of the firm and the half credited to the employe-partners will be divided among them in proportion to their wage or salaries. Of the sum allotted to the employes half will be paid in cash and a certificate for the remaining 50 per cent. will be issued to each profit sharer. The money rep-

resented by these certificates will remain in the business as capital and on it the firm will pay to the employes interest at the rate of 6 per cent. Full legal provisions are made in the plan for age retirement, payment at death and provision for dependents.

Employe-Partners Share Losses

General objections made to profit-sharing plans that employes are ready enough to take profits, but not willing to share losses is recognized clearly in the Harvard Mills plan and the agreement states that inasmuch as the firm offers to share its profits, it is but equable that the employes should bear their share of any possible losses. Such losses are to be borne equally by the employe-partners and the proprietors; but the latter will advance sufficient funds if there is not enough money in the employes' account, such loan to be charged to the employes' holdings. Provision is further made that if the interests of the employe-partners should at any time exceed in value the value of the property and business of the proprietors a corporation shall be organized under the laws of the State to which corporation would be transferred all interests of the employe-partners and all real and personal property of the proprietors, the capital stock to be equal to the value of all interests so transferred.

Plan Explained by Owners

The plan as above outlined was explained to a mass meeting of the employes in the Princess Theatre, Wakefield, by Charles N. Winship and Samuel K. Hamilton, his attorney. Some 95 per cent. of the employes of the mills are women, but the so-called foreign element is only slightly represented, perhaps 5 per cent. being Polanders, Armenians and Italians. Production charts were exhibited and the relation of increased or decreased production to overhead charges and profits were elucidated in languages that the operatives could understand. About 600 were present and at the conclusion Everett E. Rea on behalf of the Harvard Mills Welfare Association read resolutions appreciative of the action of Winship, Boit & Co.

Increased Production Expected

As to the working out of the plan in the mill it is very confidently expected by the management that production will be considerably speeded up during the year and that general mill carelessness, resulting in the production of seconds, will be largely eliminated. In common with other mills of this character, it has been found that since the Armistice, for reasons somewhat difficult to analyze, labor has been operating very much below normal efficiency and the operation of this plan, which gives every worker a real, not fictitious, interest in the mill property and output, is relied upon to restore that active and healthy interest in production without which no organization can expect to succeed on a large scale.

One of the weak features industrially seems to be that so large a percentage of the workers are young women, a large percentage of whom will marry within the next three or four years. This, of course, is a common characteristic socially of such organizations, but from the standpoint of permanency of such a plan seems to inject an element of weakness. It is expected that under the new arrangement these women workers will do more and better work, that the product will increase in quantity and improve in quality; and that, as increased production reduces proportionately the overhead of manufacturing per garment, profits will be larger, and the larger the profits the larger the earnings and holdings the employes will enjoy under this plan.

International Trade Presents Varied Problems

(*Continued from page 222*)

But in the present case, the purchasing of foreign securities or the financing of foreign customers on a large scale will be supported by no such splendid sentiment as patriotism. If it is attempted at all, it must be upon a basis of business. This is unfortunate, but it describes the fact. The war is over, and, unfortunately, many of the splendid sentiments which made its winning possible have passed, or at least have not remained in any form which can serve in this foreign connection. The countries of Europe which not so long ago were convinced that never again would they have anything to do with the hated German, apparently are finding in the exchange situation rather attractive inducements to revise their earlier expressed judgment upon this point.

Difficulties of Export Trading

Our American business men are finding trading with our friends over yonder beset with difficulties. First of all, there is the foreign exchange with all that goes with it, which means better buying conditions almost anywhere in Europe than are to be found in the United States, all things considered. The European countries, quite naturally, will follow the sound practice of buying from debtors and selling to creditors, which gives the European seller a very distinct advantage over us. It came out rather strongly in the International Trade Conference at Atlantic City that France and Belgium are taking the German indemnity very seriously, and it was stated that French and Belgian business men could make purchases in Germany and charge them to the indemnity account. An even fairly careful study of German methods during the war will make this theory seem to be of doubtful value.

Fortunately, however, certain of the difficulties which we consider most seriously in our foreign trade discussions on France, Belgium and Italy do not apply to other parts of the world which offer most attractive trade possibilities to us. Latin America and the Far East are still on the map. They wish to buy and to sell. They have made a great deal of money during war times. One or two of the Latin American countries represented at the recent Pan-American Conference quite surprised the American group members by saying that they had funds down yonder which they would like to invest in American values, that is, United States values. In any event, their producing machinery is in better condition than ever before, their needs as regards merchandise which they do not produce themselves have increased considerably, and business conditions generally seem to suggest most attractive trading possibilities.

Then there are the neutrals—Switzerland, Spain and Portugal, Holland, the Scandinavian countries. Most of these were treated rather kindly by the war as regards the development of wealth. They are buying steadily from this country and there is every reason to believe that they will continue to do so. They are able to look after themselves, and it is probable that their interest in international arrangements, such as the Peace Treaty and the League of Nations, is not such as to prejudice them against the United States because of any real or imagined delays for which we may be responsible.

A great deal of comment of this general sort might be indulged in upon the general world trade situation. It is believed, however, that the big thing in the case is to be found here at home. Our labor difficulties must be adjusted, at least a working basis must be evolved; unit efficiency must be increased; waste must be stopped; values must be scanned more closely, and above all, each man must recognize his individual responsibility in the national situation. Business men should study the entire situation carefully before extending. It is a fine time to take stock, to talk things over, to get our own shop in working order, to avoid mixing sentiment with business too much. After that, we almost certainly will find that the difficulties of the foreign trade situation can be met with fair hopes of complete success.

Definitions of Export Quotations

General Recommendations for Standard American Practice

The following definitions of export quotations were adopted by the National Foreign Trade Council, Chamber of Commerce of the U. S. A., National Association of Manufacturers, American Manufacturers' Export Association, Philadelphia Commercial Museum, American Exporters' and Importers' Association, Chamber of Commerce of the State of N. Y., N. Y. Produce Exchange and N. Y. Merchants' Association, at a conference held in India House, N. Y., on December 16, 1919.

As the most certain means of insuring unmistakable clarity in terms and conditions of sale, the Conference voted to recommend to manufacturers and exporters that all use of abbreviated forms of export price quotations be abandoned, and that such terms be written out in full.

The Conference recognized, however, that this recommendation is not likely to be accepted generally at once; and therefore, in the hope of effecting a simplification and standardization of American practice, it adopted the following statement of definitions of the abbreviated forms in more common and general use in the export trade. The Conference strongly recommends to manufacturers and exporters that wherever abbreviated forms of export quotations are employed, the forms herein defined be used, as far as possible, to the exclusion of other forms.

THESE are, in their order, the normal situations on which an export manufacturer or shipper may desire to quote prices. It is understood that unless a particular railroad is specified, the property will be delivered to the carrier most conveniently located to the shipper. If the buyer, for the purpose of delivery, or in order to obtain lower transportation charges, desires that the goods be delivered to a carrier further removed from the shipper and entailing a greater cost than delivery to the carrier most favorably situated, the carrier to which the buyer desires delivery of the goods should be named in the quotation. The term "cars or lighters" as used herein, is intended to include river, lake or coastwise ships, canal boats, barges, or other means of transportation, when so specified in the quotation.

1. When the price quoted applies only at inland shipping point and the seller merely undertakes to load the goods on or in cars or lighters furnished by the railroad company serving the industry, or most conveniently located to the industry, without other designation as to routing, the proper term is:

"F. O. B. (named point)"

Under this quotation:

A. Seller must

(1) place goods on or in cars or lighters

(2) secure railroad bill of lading

(3) be responsible for loss and/or damage until goods have been placed in or on cars or lighters at forwarding point, and clean bill of lading has been furnished by the railroad company.

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) pay all transportation charges, including taxes, if any

(3) handle all subsequent movement of the goods.

2. When the seller quotes a price including transportation charges to the port of exportation without assuming responsibility for the goods after obtaining a clean bill of lading at point of origin, the proper term is:

"F. O. B. (named point) FREIGHT PREPAID TO (named point on the seaboard)"

Under this quotation:

A. Seller must

(1) place goods on or in cars or lighters

(2) secure railroad bill of lading

(3) pay freight to named port

(4) be responsible for loss and/or damage until goods have been placed in or on cars or lighters at forwarding point, and clean bill of lading has been furnished by the railroad company

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) handle all subsequent movement of the goods

(3) unload goods from cars

(4) transport goods to vessels

(5) pay all demurrage and/or storage charges

(6) arrange for storage in warehouse or on wharf where necessary

3. Where the seller wishes to quote a price, from which the buyer may deduct the cost of transportation to a given point on the seaboard, without the seller assuming responsibility for the goods after obtaining a clean bill of lading at point of origin, the proper term is:

"F. O. B. (named point) FREIGHT ALLOWED TO (named point on the seaboard)"

Under this quotation:

A. Seller must

(1) place goods on or in cars or lighters

(2) secure railroad bill of lading

(3) be responsible for loss and/or damage until goods have been placed in or on cars or lighters at forwarding point, and clean bill of lading has been furnished by the railroad company

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) pay all transportation charges (buyer is then entitled to deduct from

the amount of the invoice the freight paid from primary point to named port)

(3) handle all subsequent movement of the goods

4) unload goods from cars

5) transport goods to vessel

(6) pay all demurrage and/or storage charges

(7) arrange for storage in warehouse or on wharf where necessary

4. The seller may desire to quote a price covering the transportation of the goods to seaboard, assuming responsibility for loss and/or damage up to that point. In this case the proper term is:

"F. O. B. Cars (named point on seaboard)"

Under this quotation:

A. Seller must

(1) place goods on or in cars

(2) secure railroad bill of lading

(3) pay all freight charges from forwarding point to port on seaboard

(4) be responsible for loss and/or damage until goods have arrived in or on cars at the named port

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) unload goods from cars

(3) handle all subsequent movement of the goods.

(4) transport goods to vessel

(5) pay all demurrage and/or storage charges

(6) arrange for storage in warehouse or on wharf where necessary

5. It may be that the goods, on which a price is quoted covering the transportation of the goods to the seaboard, constitute less than a carload lot. In this case, the proper term is:

"F. O. B. Cars (named port) L. C. L."

Under this quotation:

A. Seller must

(1) deliver goods to the initial carrier

(2) secure railroad bill of lading

(3) pay all freight charges from forwarding point to port on seaboard

(4) be responsible for loss and/or damage until goods have arrived on cars at the named port.

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) handle all subsequent movement of the goods

(3) accept goods from the carrier

(4) transport goods to vessel

(5) pay all storage charges

(6) arrange for storage in warehouse or on wharf where necessary.

6. Seller may quote a price which will include the expense of transportation of the goods by rail to the seaboard, including lighterage. In this case, the proper term is:

"F. O. B. Cars (named port)

LIGHTERAGE FREE"

Under this quotation:

A. Seller must

(1) place goods on or in cars

(2) secure railroad bill of lading

(3) pay all transportation charges to, including lighterage at, the port named.

(4) be responsible for loss and/or damage until goods have arrived on cars at the named port.

B. Buyer must

(1) be responsible for loss and/or damage incurred thereafter

(2) handle all subsequent movement of the goods

(3) take out the insurance necessary to the safety of the goods after arrival on the cars

(4) pay the cost of hoisting goods into vessel where weight of goods is too great for ship's tackle

(5) pay all demurrage and other charges, except lighterage charges.

7. The seller may desire to quote a price covering delivery of the goods alongside overseas vessel and within reach of its loading tackle. In this case, the proper term is:

"F. A. S. vessel (named port)"

Under this quotation:

A. Seller must

(1) transport goods to seaboard

(2) store goods in warehouse or on wharf if necessary, unless buyer's obligation includes provision of shipping facilities

(3) place goods alongside vessel either in a lighter or on the wharf

(4) be responsible for loss and/or damage until goods have been delivered alongside the ship or on wharf

B. Buyer must

(1) be responsible for loss and/or damage thereafter, and for insurance

(2) handle all subsequent movement of the goods

(3) pay cost of hoisting goods into vessel where weight of goods is too great for ship's tackle.

8. The seller may desire to quote a price covering all expenses up to and including delivery of the goods upon the overseas vessel at a named port. In this case, the proper term is:

"F. O. B. vessel (named port)"

Under this quotation:

A. Seller must

(1) meet all charges incurred in placing goods actually on board the vessel

(2) be responsible for all loss and/or damage until goods have been placed on board the vessel.

B. Buyer must

(1) be responsible for loss and/or damage thereafter

(2) handle all subsequent movement of the goods.

9. The seller may be ready to go farther than the delivery of his goods upon the overseas vessel and be willing to pay transportation to a foreign point of delivery. In this case, the proper term is:

"C. & F. (named foreign port)"

Under this quotation

A. Seller must

(1) make freight contract and pay transportation charges sufficient to carry goods to agreed destination

(2) deliver to buyer or his agent proper bills of lading to the agreed destination

(3) be responsible for loss and/or damage until goods have been delivered alongside the ship and clean ocean bill of lading obtained (seller is not responsible for delivery of goods at destination).

B. Buyer must

(1) be responsible for loss and/or damage thereafter and must take out all necessary insurance

(2) handle all subsequent movement of the goods

(3) take delivery and pay costs of discharge, lighterage and landing at foreign port of destination in accordance with bill of lading clauses

(4) pay foreign customs duties and wharfage charges, if any.

10. The seller may desire to quote a price covering the cost of the goods, the marine insurance on the goods, and all transportation charges to the foreign point of delivery. In this case, the proper term is:

"C. I. F. (named foreign port)"

Under this quotation

A. Seller must

(1) make freight contract and pay freight charges sufficient to carry goods to agreed destination

(2) take out and pay for necessary marine insurance

(3) be responsible for loss and/or damage until goods have been delivered alongside the ship, and clean ocean bill of lading and insurance policy have been delivered to the buyer, or his agent. (Seller is not responsible for the delivery of goods at destination, nor for payment by the underwriters of insurance claims.)

(4) provide war risk insurance, where necessary, for buyer's account.

B. Buyer must

(1) be responsible for loss and/or damage thereafter, and must make all claims to which he may be entitled under the insurance directly on the underwriters

(2) take delivery and pay costs of discharge, lighterage and landing at foreign port of destination in accordance with bill of lading clauses.

(3) pay foreign customs duties and wharfage charges, if any.

EXPLANATION OF ABBREVIATIONS

F. O. B.....Free on board
F. A. S.....Free alongside ship
C. & F.....Cost and freight
C. I. F.....Cost, insurance and freight
L. C. L.....Less than carload lot

General Recommendations

In reaching the conclusions set forth in this statement the Conference considered the fact that there are, in more or less common use by manufacturers in different parts of the United States, numerous variations of these abbreviations, practically all of which are employed to convey meanings substantially synonymous with those here defined. For instance, there are manufacturers who quote "F. O. B. Cars," "F. O. B. Works," "F. O. B. Mills" or "F. O. B. Factory" meaning that the seller and buyer have the same responsibilities as those set forth in section 1. The Conference considered all those variations and determined to recommend the use of "F. O. B. (named point)," as "F. O. B. Detroit," "F. O. B. Pittsburgh," etc. Of the considerable number of these abbreviations which are used in the United States, the Conference felt that the form "F. O. B. (named point)" is most widely used and understood, and therefore should be adopted as the standard of practice.

The chief purpose of the Conference is to simplify and standardize American practice, and to that end it urges manufacturers and exporters to cease the use of synonymous abbreviations and quote habitually in the terms here recommended, just as far as these terms will cover the price conditions which it is desired to arrange with the buyer.

Variations of the abbreviations recommended in other sections also are in more or less common use throughout the United States. The recommendations of the Conference set forth above apply to them with the same force as to those cited under section 1.

Manufacturers and exporters are urged to bear in mind that the confusion and controversies which have arisen have sprung in part from the use of an excessive number of abbreviated forms with substantially similar meanings, as well as from the use of abbreviations in a sense different from their original meanings, or in an application not originally given them and different from the sense or application understood by foreign buyers.

In simplified and standardized practice lies the best hope of reducing confusion and avoiding controversy.

The Conference urges upon manufacturers and exporters the very great importance at all times of making their intention in whatever quotations they employ so thoroughly clear as to be impossible of misunderstanding or misinterpretation. It is much better to take the time and space at the outset to make the quotation clearly understood, than to be compelled in the end to go through vexatious controversy or litigation, which costs not only time and expense, but customers as well. Misunderstandings can best be avoided if the seller will formulate a written statement of the general conditions under which his sales are to be made, and will see that the foreign buyer possesses these terms of sale when considering a quotation. The items which may be included in such a statement, deal with: delivery, delays, partial shipments, shipping instructions, inspection, claims, damage, and payment. If all contingencies are thus covered by carefully considered conditions of sale, disputes will largely be prevented.

The quotation "F. O. B. (named port)" as "F. O. B. New York," "F. O. B. New Orleans," "F. O. B. San Francisco," is often used by inland producers and distributors to mean merely delivery of the goods at railway terminal at the port named. This abbreviation originated as an export quotation and had no application to inland shipments. It was used only to mean delivery of the goods upon an overseas vessel at the port named. That, in fact, is the meaning universally given to the phrase among foreigners, and is the meaning which the best practice among exporters requires it invariably to have. But because of the confusion which has arisen through the use of that form with a different meaning by inland producers and distributors, and in the interest of unmistakable clarity, the Conference most strongly urges the invariable use by American manufacturers and exporters of the form "F. O. B. Vessel (named port)." This adds only one word to the abbreviated form and has the great advantage that it cannot be misunderstood. It also avoids the difficulty which might arise among foreigners not always well versed in American geography, through confusing an inland forwarding point with a shipping port at seaboard.

The Conference calls attention to the fact that in selling "F. A. S. Vessel" manufacturers and exporters should be careful to have their agreements with buyers cover explicitly the question of responsibility for loss after goods have been delivered on the wharf or alongside the vessel and before they are actually loaded on the ship. There is no generally established practice on this point. The recommendation of the Conference in the definitions of responsibility under section 7, sets up a rule which it is hoped will lead to the establishment of a standard practice.

It is understood that the provision of lighterage covered in several of these recommendations is only within the usual free lighterage limits of the port, and that where lighterage outside such limits is required, it is for buyer's account.

In order to avoid confusion in another particular, attention is called to the care which must be exercised in all cases in making weight quotations. The net ton, the gross ton and the metric ton, all differ in weight. Similarly there is a variation in the use of the term "hun-

dredweight" to mean either 100 pounds or 112 pounds. It is, therefore, not sufficient to quote a price per "ton" or per "hundredweight." Instead the Conference recommends the use of the terms "ton of 2,000 lbs.," "ton of 2,240 lbs.," or "ton of 2,204 lbs.," etc., whichever is intended.

It is also important to note that a carload lot in the United States means the quantity of the particular commodity in question necessary to obtain the carload freight rate for transportation on American railways. This quantity varies according to the commodity and also varies in different parts of the country. Certain commodities being more bulky than others, the minimum carload for them is less than for heavier products occupying less space. The load required may range anywhere from 12,000 to 90,000 pounds. Consequently it is important, when quoting prices applicable to carload lots, to so state and to specify the minimum weight necessary to make a carload lot of the particular commodity for the particular shipment in question.

The Conference points out that in quoting "C. & F." or "C. I. F.," manufacturers and exporters moving large quantities of material by one vessel should be careful to ascertain in advance the buyer's capacity to take delivery. This because, under these terms and as a condition of making the freight rate, transportation companies may require a certain rate of discharge per day, and that rate of discharge might be in excess of the buyer's capacity to take delivery. In such event an adjustment with the transportation company would be necessary, which might affect the freight rate and consequently the price to be quoted.

The Conference also strongly urges shippers clearly to understand the provisions of their insurance protection on all foreign sales, irrespective of the general terms used thereon. In almost all cases it should be possible, when making shipments by steamer, to obtain insurance cover giving full protection from primary shipping point to designated sea port delivery, and/or foreign port delivery. As ordinary marine insurance under F. P. A. conditions—i. e. free of particular average, gives no protection against deterioration and/or damage to the merchandise itself while in transit, when caused by the recognized hazards attending such risks, shippers should endeavor in all cases to obtain insurance under W. P. A. (S. P. A.) conditions—i. e., with particular average (subject to particular average), when in excess of the customary franchise of 3 to 5 per cent. Under such form of insurance, underwriters will be called upon to pay claims for damages when these exceed the stipulated franchise.

Finally, the Conference strongly recommends, as a most effective measure of simplification, the general practice of quoting for export, as far as possible, either "F. A. S. Vessel," "F. O. B. Vessel" or "C. I. F." Concentration on this small list, all of which terms are readily understood abroad and are difficult of misinterpretation, will, it is felt, be markedly influential in avoiding confusion and controversy.

The conclusions and definitions set forth above are the recommendations of a Conference which was composed of representatives of nine of the great commercial organizations of the United States interested in foreign trade. Not all have as yet the force of law or long established practice; but it is the hope and expectation of the Conference that these recommendations will receive such adherence on the part of American producers and distributors, as to make them in fact the standard American practice. And it is, therefore, expected that in due time they will receive the sanction of legal authority.

An Approach to Textile Research

(*Continued from page 211*)

conditions very different from even the best of those established by humidifiers. In the first place, natural humidity is usually due to the presence of almost pure water vapor, while the humidity obtained by artificial means consists usually in the presence of a certain amount of water vapor plus a certain amount of suspended water in the form of microscopic drops. Again, while natural humidity is distributed with something approximating uniformity, artificial humidity usually is distributed with anything but uniformity, and is much greater near the humidifiers than it is a short distance away.

Then again, the temperature of large outdoor bodies of air is moderately uniform, at any rate, as compared with the variations of small indoor bodies of air artificially humidified. Finally, the very fact that artificial humidity is obtained by machines whose work has to be carefully considered in terms of dollars and cents, may lead to an economy in its use that will accentuate the lack of uniformity already mentioned. The amount of humid air that can be produced artificially is relatively so small and at the same time so costly, that, relatively speaking, it is used economically and not freely, as is the case with outside air of proper humidity.

Many Variables Involved

Where, as already remarked, there are cubic miles of humid air from which to draw, there is no call for economy. But the user of costly artificial humidity produces a minimum amount and attempts to distribute it in the enclosed spaces of the mill floors so as to make it go as far as possible. The inevitable result is a certain lack of uniformity. There are many factors that contribute to this non-uniformity. Consider for a moment the effect of the various machines on the relatively small amount of surrounding humidified air. When the mill starts the machinery is cold and the temperature of the air relatively low; after the machinery has been running for a little while it begins to warm up and every machine becomes a center of heat radiation, the amount of which depends on the friction it generates and on other factors. This change in the temperature of the surrounding air immediately affects the humidity. Or take the case of electric motors. These start cold, rapidly warm up, and often become hot, so that different parts of the air in the same enclosed mill space may vary in a few hours through a wide range of temperature. It hardly requires an expert to understand that under such variable conditions of temperature, perfect control of humidity becomes very difficult.

A Simple But Important Experiment

Now, to all these changes in the moisture and temperature of the air, or what is called relative humidity, every single fibre of cotton responds in a marvelous fashion. This is so important a matter that I have spent considerable time in devising an experiment to exhibit in a graphic way what happens to a single fibre when the amount of moisture in the surrounding air changes. This is the well-known experiment of suspending a straw on a single fibre alternately in tumblers containing moist and dry air. Everyone who has to do with the manufacture of cotton fabrics should see this experiment, and attempt to understand exactly what it means. The more clearly he sees and reasons about what occurs in this experiment, the better groundwork he will have for a knowledge concerning the most important problems of the textile industry. It is a matter in which one can say with the utmost truth: Here you must concentrate upon the single fibre. You will never understand any of the more important spinning operations until you connect them up with the behavior of the single fibre in this experiment. You will never understand the ins and outs of testing yarns and fabrics until you fully grasp what happens to this single fibre under these changes in relative humidity.

Chemistry of the Single Fiber

These changes in form and in tensile strength which take place in the fibre owing to the change in the relative humidity of the surrounding air, are physical changes. It is just as important to understand the chemical composition in the fibre as it is to understand the physical composition; for, upon problems connected with the chemical composition of the fibre, depend the important operations connected with dyeing, and the equally important—perhaps more important conditions, attending the purchase and use of cotton. A certain degree of confusion appears sometimes to exist in the minds of those intently bent upon improving the quality of cotton by the introduction or breeding of superior varieties and by improved cultural conditions. The exceedingly important improvements that have been wrought by these methods (which there is good reason to hope may be eclipsed by future achievements along the same line) have for their main object the production of an increased quantity of a cotton of a superior quality. If our thought dwells continually or most frequently upon these features of cotton improvement, we may sometimes overlook the fact that climatic conditions, over which mankind has no control, give rise every season somewhere, and some seasons almost everywhere to cotton that is different or inferior, no matter what its grade and no matter how great care has been exercised in its selection and culture.

This is a matter of very great importance to the textile industry. The changes in the fibre by which it becomes inferior are partly chemical, partly physical. Every part of the fibre may become chemically different from the waxlike coating which exists on the surface of the fibre to the pithy matter along the axis. Loss or variation in the wax changes the lustre and to a certain extent the color. Microbe and fungus growths, which are more frequent in long-continued damp weather, affect the fibre chemically as well as physically. Growing upon the surface of the fibre, or creeping through its central channel, they feed upon the substance of the fibre, changing it chemically as well as physically. These changes have an immense influence upon the value and usefulness of the fibre in the textile industry. They change its strength and other physical qualities. They often have a marked effect on the way in which the fibre accepts and retains the dyes, upon the bleaching quality of the fibre, and may affect it in other very important ways. Here again we come back to the single fibre. Nothing but a study of the single fibre will give an adequate solution to scores of the problems that arise in what may be called the biological chemistry of cotton.

Of course, these changes which start in the field continue after the cotton is stored, and even after it is spun and woven if the conditions are right. The changes are largely due to the growth of micro-organisms. This growth is dependent upon moisture. Once the fibres are inoculated, the organism is not likely to disappear. Its action will be revived whenever the moisture conditions permit, whether in storage or in manufacture. In the main, whatever happens in one fibre, happens the same way in another. The scientific study of such problems therefore demands that attention be concentrated upon the single fibre. Here the problem may be solved. It is unlikely that it will ever be solved elsewhere and in some other way.

Still in the Bird's Nest Stage

These are only a few of the examples that might be used to illustrate the strong advisability of giving greater attention to the single fibre. But there are many other reasons, some of which may be called structural reasons. If asked to concentrate in one word the difference between a bird's nest and a basket, we might answer: "Brains." Perhaps the answer would be more relevant if made to the question: "What is the difference between a bird's nest and a bungalow?" In the bungalow, every piece of material is measured and cut. It fits in its place exactly. All of its strength and its other properties are used to full advantage. The same is true of the elements of a basket, though the adaptations may be much less perfect. In the basket, however, the elements are more nearly alike, in the bungalow they are widely different.

In the basket and the bungalow we have an accurate, even mathematical, arrangement of the elements of the structure. Now, it is not too much to say that our efforts in the textile industry should be in the direction of using the elements, that is, the fibres, in the accurate and mathematical way that the tiles, bricks, and timbers are used in the bungalow, but as yet we have only reached the bird's nest stage. Take a piece of medium-sized yarn, make it into a small loop or tie it in a loose knot, and examine it with a low power of the microscope, and you will have an appearance so closely resembling a bird's nest, that you will no longer wonder at my comparisons. In fact, except that we have imparted a decided twist to the yarn, we have gone but very little beyond the skill exhibited by birds in building their nests.

Would it be possible to so dispose of the fibres in yarn to make it comparable in the systematic arrangement of its elements to a basket or a bungalow? In replying, let me first call attention to two or three well-known facts: Wool and hair have a surface texture comparable to the shingling on a roof; it is a surface that you can "rub the wrong way," as the saying is. Pull a hair out of your head, press it between your thumb and forefinger, rub these latter back and forth upon each other, and the hair will always travel in one direction. You can't by any possibility make it travel in the opposite direction. This shows that the roughness is "all in one

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direction." Now imagine two yarns, in one of which the wool fibres lie with the butts all one way, while in the other, only half of them lie with their butt-ends in one direction,—half of them lying in the other. Which yarn would be the stronger? Manifestly, the second. There would be more friction among the fibres. Has such a yarn ever been spun? Could such a yarn be spun? Or any approximation to it?

Cotton fibres taper; most of them taper gradually and uniformly from one end to the other. Imagine two cotton yarns, one of which has the butt-ends of the fibre all lying one way, and the second with half lying in one direction and half lying in the other. What would be the differences between these two yarns? Could such a yarn be made?

Profitable Research Must Be Intensive

These few paragraphs do no more than sketch, very roughly and very inadequately, a single phase of the application of science to the textile industry. There are many other phases just as important. When will the industry awaken to the obvious fact that it is only by combination and cooperation that many of the problems awaiting solution can be solved? Scientific investigation is slow, tedious and expensive; often it "gets nowhere," as the saying is,—a very narrow, ignorant saying. The only way to make up for these investigations that fail to "get anywhere" is to finance a sufficient number of investigations so that some of them will succeed. Then the losses due to the failures will be compensated for by the successes. We are living in a day when this great truth is not only recognized, but made use of. Will the textile industries lag behind?

Research Plans of Linen Manufacturers

The Necessity and Certain Benefits Explained—Government Support Equals Irish Appropriation

The research plan of Irish linen manufacturers is typical of that inaugurated by British cotton, wool, silk and other sections of the textile industry of Great Britain under the patronage and supervision of the Government through the so-called Scientific and Industrial Research Department. The linen manufacturers have subscribed $50,000 for a five year programme of research, the Government grant being pound for pound, or a total of $100,000 (£20,000 approximately).

The fact that the Irish manufacturers have been quicker to complete their fund than some of the other British textile groups was due undoubtedly to the fact that they had already learned the benefits of co-operation through their experience in associated effort to improve the flax crop, and also to develop broader markets for their products. So successful have been the latter joint activities that they seem likely to attack the research problems more unitedly and actively than certain other branches of the British textile industry, and their efforts will bear close watching by those who would compare Government controlled research with the results of independent effort as exemplified by individual firms and associations in this country.

It was to have been expected that Irish linen manufacturers, whose mills are located close to the flax fields, should have been quick to visualize the importance of fundamental research designed to improve and standardize the fiber. President Crawford, of the Irish Linen Manufacturers' Association, who is quoted in the accompanying article, makes it plain that this will be the purpose of initial research work. It will be interesting to see whether the proximity of Southern cotton mills and cotton fields will have a similar influence upon the manufacturers of that section when planning scientific research programmes.

(By Our Regular Correspondent)

PRESIDING at the inaugural meeting of the Linen Industry Research Association in Belfast, Ireland, recently, James G. Crawford, managing director of York Street Flax Spinning Company (the world's largest linen mills) and president of the Irish Linen Manufacturers' Association, outlined the necessity for, and the benefits certain to accrue to the linen industry through the application of scientific research. In fact, the idea of research at all, according to him, marked an epoch in the history of the trade. However, if they were to look diligently into the trade's early history they might be amazed at how well and truly its foundations had been laid, how sound was the economic theory to which the builders were working. On these foundations were built up the world-wide reputation of Irish linen.

However, on that reputation they had been too long content to live, with little or no concern beyond their next balance sheet, without an idea of the wider vision of those who had gone before, and without taking time to look ahead or to consider the questions which lay at the very basis of the manufacture and commerce. In fact, it is questionable except for the application of machinery, if the methods of production are much different and improved from what they were in the days of the Pharaohs.

The Research Spirit Evoked

Now a change had come. When it came, or how, was not easily explainable. Some of its evidences were plainly cited. A desire for common action, for co-operation, gradually dispelling the feeling of mutual distrust, more noticeable at first among the spinners, but eventually equally evident in all branches of the trade, began to evoke new life in the industry. Various new factors came in; the new scientific spirit was abroad in the world. Another factor was with regard to labor. Labor began to demand a larger share of the good things of this life. No right-minded person would dispute that claim, but the goal could not be reached by merely shortening hours and raising wages. The combined effect of both these factors was to raise the cost of product, and if carried out all round everything went up simultaneously. What advantage was there in high wages if prices of all commodities rose in the same proportion?

The Production Problem

But if they could increase the yield of flax per acre, and save the seed, they might possibly reduce the price of flax below its pre-war level, or at any rate get it back to that point, and at the same time make it a more profitable crop to the grower. If they could eliminate waste in manufacture; if they could derive a revenue from the better utilization of by-product; if, by co-operation with the wage earners, they could increase the production per hour, they had an offset against the increased cost of production. Then they could afford to pay high wages without raising the price of their product correspondingly, and then the wage earners would profit in proportion. The formation by the Government of the Scientific and Industrial Research Department supplied the suggestion necessary to make them see that organized research was essential, as the outcome both logical and natural for the solution of all these problems.

Linen Trade's Present Position

Now there really was at last an organized linen trade. No longer did they exist merely as a number of entirely independent and jealous firms, but formed into a series of associations working in co-operation in the interests of their industry. Practically all their members had joined in the support of the Flax Society, Limited, at one end of their operation and of the Irish Linen Society at the other. The one had for its aim the direct improvement in the supply of raw material, both as to quantity and method. The Linen Society at the other end sought to develop the market for their finished goods and find new ones, tending to prevent violent fluctuations in price which were so disastrous to commerce. It sought to establish standards of quality for their products, and to eliminate the ruinous cutting of prices and manufacturing to price, which had done them so much harm in the past.

The Aims of Research

Research might be broadly classified under two heads: (1) Pure or scientific research concerned chiefly to increase the sum of knowledge, and (2) industrial research, concerned with making such acquired knowledge useful to a particular industry. Undoubtedly the linen industry would derive direct benefits from industrial research, so it might appear that they would be spending their money to best advantage by confining their efforts to that branch. Yet he believed that without pure research they would miss something equally certain if longer delayed, and of incomparably greater value.

He might elaborate a case for the Linen Industry Research Association: The basis of the entire linen manufacture was the flax plant; what did they know about it? Appallingly little. They had not taken the trouble to either study it or improve it. There was as much difference between a cambric and a tent duck as between a thoroughbred and a shire horse. Yet they expected to grow flax crops to manufacture both fine and coarse goods from seed derived from one haphazard source—Russia. It was not reasonable. Plants would respond to selection as readily as animals.

There was a whole range of different wheats to suit different climates or seasons, and the same is true of potatoes or cabbages, but so far there was nothing of the sort for fiber flax. At present the position of fiber flaxseed was one of the greatest confusion. Long and short, coarse and fine, early maturing and late, blue and white blossom—all these were hopelessly mixed together, and from this one mixture they were asked to produce the whole range of cloths from the finest cambric to the coarsest canvases. From what he had seen he believed it would be quite possible to have one variety of flax producing fine warp, another medium warp, another heavy warp. This branch of the work, seed selection, they intended to take up immediately. It had been carried out hitherto by Dr. Eyre, financed by a grant from the Development Commissioners, but now it would be the work of the Linen Research Association.

The Scope of Research

There were dozens, nay, hundreds of other problems awaiting investigation and research; for instance, the utilization of pouce and other waste products, or the elimination of others, such as scutching tows and spinning waste. There was, again, the very important and complex question of dressing warps. Many other problems of vast commercial and economic importance would occur to them. And as they got started the number of questions requiring an answer would increase in arithmetical, if not geometrical progression.

There would necessarily be co-operation with some college or university for the use of their laboratories until the Association equipped their own buildings. The Board in consultation with the Director (Dr. Eyre) would determine what parts of the programme of research would be undertaken, and in general they would determine the policy of the association. It might be possible to suppose that in three years there might be some tangible evidence of work, but five years or even longer might elapse.

As regards the finances of the Linen Industry Research Association, the members of the trade will subscribe up to $50,000, and for every $5 they furnish the Government would subscribe an equal amount. From fiber to finished cloth there is ample ground for research, and it is decidedly encouraging to see the Irish linen trade and the conjoint Scotch branch also so enthusiastic in "setting their house in order." Nothing is more certain than that, although the research work is now being undertaken for a limited number of years, it will so justify itself in this period that there will be no question five years hence but of how to extend and widen its scope and activities. It will result in the absolute rejuvenation of the oldest textile industry in the world.

The Textile Research Company

Methods and Policy of New Corporation Places Research Work on a Business Basis

By *E. D. Walen*

THE progress of our great industries has been largely due to the application of research, or research methods, to the manufacture, design and development of new products and methods to economically meet the demands made upon industry.

In the industries other than textile

there can usually be found men who are versed in research methods as applied to manufacturing, and who have had sufficient training in applying fundamentals to a particular industry. The textile industry is limited in this respect to consultants in the chemistry of textiles, and the general engineering problems which arise in regard to mill construction, power requirements and the like.

The textile machinery manufacturers maintain departments which presumably devise new machines for new purposes, but the developments are usually confined to application of existing designs and castings. Within the organization of a textile mill it is usually true that there are men capable of conducting research, but these men are usually so busy with routine business that they cannot give proper attention to research and development work.

Hardly a day passes but what a problem arises in a mill which is temporarily met and gotten away with sufficiently to get the goods through. Under the circumstances many clever temporary arrangements are arrived at, but little permanent progress accomplished.

In the interests of better manufacturing, how much more economical it would be in the long run to thoroughly study each problem, and to arrive at the most economical solution, which can usually be applied to future work regardless of different conditions. It is generally true that hit and miss solutions are not applicable to all classes of manufacture, and that if a mill man has not had experience in a particular line his remedies are not of much value in other classes of textile work.

Systematic Study of Mill Problems

The Textile Research Company is organized to make a research or investigational service available to the manufacturers, and to supply that lack of systematic study within a mill in which time usually prohibits indulgence by the mill men.

The laboratories maintained by this company are rather unique. The usual laboratory is well equipped to handle only certain classes of work and beyond which it cannot indulge. Obviously, a textile laboratory, to conduct all researches demanded of it, would of necessity be very expensive, and could not be completely equipped until all that could be known about textiles was known. Consequently, equipment is designed and added as the need arises, and as a problem progresses. In many cases such equipment is only valuable in regard to a particular problem, and is so constructed that it may be discarded upon completion of the work.

The Textile Research Company offers research, or investigational service, to any one interested in such work in connection with the raw materials, methods, machinery and technical efficiency of manufacture and the development of the most satisfactory product for a given use, limiting its work strictly to the field of textiles. The business policy of the company is to ask compensation in proportion to the value of its work.

Textile Mill of U. S. Bureau of Standards

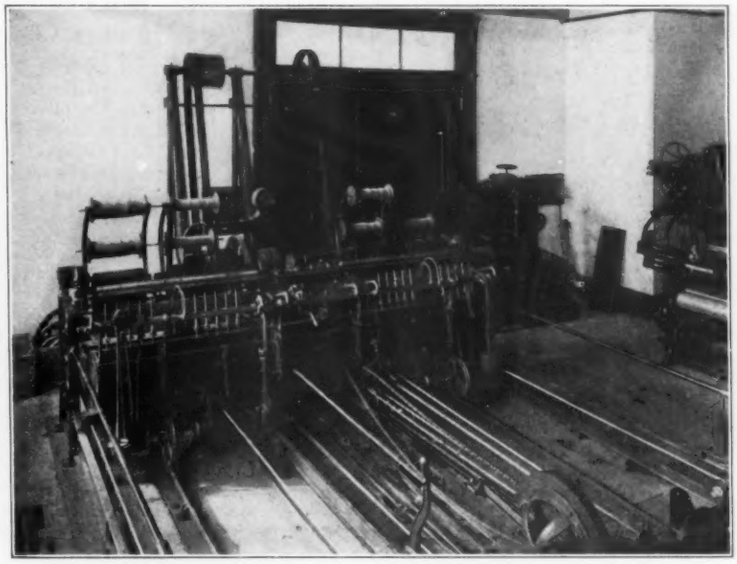
Full Equipment of Cotton and Wool Machinery Available to Mills for Research Work

By *R. T. Fisher*, Assistant Chief of Textiles

THE textile section of the National Bureau of Standards, in addition to its physical testing and chemical laboratories, has practically completed the installation of its experimental cotton and wool manufacturing laboratories. The cotton mill equipment is all commercial machinery with slight modifications to secure a wider range of results than is expected in regular mill practice. This equipment comprises the following for cotton:

The Cotton Mill Equipment

1 Breaker Picker and Opener, Kitson.
1 Finisher Picker, Kitson.
1 Card, 40 in., Whitin.
1 Card, 40 in., Saco-Lowell.
1 Silver Lapper, Whitin.
1 Ribbon Lapper, Whittin.
1 Comber, Single-nip, Whitin.
1 Drawing Frame, 2 delivery, Saco-Lowell.



TEXTILE MILL OF BUREAU OF STANDARDS, SHOWING 24-SPINDLE WOOL MULE

1 Drawing Frame, 2 delivery, Whitin.
4 Fly Frames, Whitin:
Doubler, 12 in.
Intermediate, 10 in.
Fine, 8 in.
Jack, 6½ in.
4 Spinning Frames:
1 Whitin 66-spindle; one side 3 in., and the other 2½-in. ring.
1 Whitin 60-spindle; one side 2 in., and the other 1¼-in. ring.
1 Fales and Jenks 80-spindle; one side 1¼ in. and the other 1½-in. ring.
1 Fales & Jenks 72-spindle; one side 1¾ in. and the other 1¾-in. ring.
1 Warper, 468-ends, Universal.
2 Winders, Universal.
1 Twister, 60-spindle, Whitin.
1 Loom, Dobby Head, Crompton & Knowles.
1 Loom, Plain, Dobson & Barlow.
1 Slasher, Saco-Lowell.
5 Type KT Knitting Frames, Scott & Williams.
2 Wright Steady-Dial Loopers.
Rovings cans, trucks, reels, scales, card strippers, grinders, etc.

Layout of Machinery

The mill is all on one floor and is divided into three rooms, i. e.: The picker room, the card room, and the general mill. All are equipped with an automatic humidification system which can be set to maintain, within reasonable limits, whatever degree of relative humidity is required. While it is not the usual practice to put drawing, spinning, and weaving in one room, no trouble is expected from this source as it is unlikely that all of the processes will be in operation at any one time. The machinery is driven by individual motors, which will give an opportunity to investigate the efficiency and practicability of this type of drive.

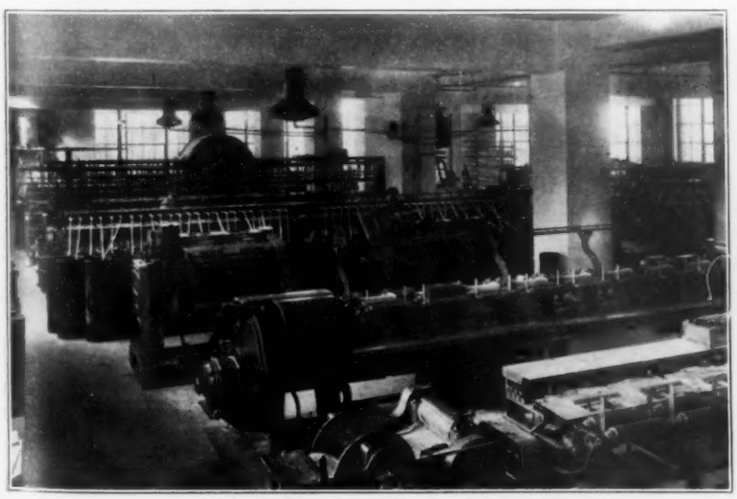
Woolen Equipment

The woolen mill equipment is a duplicate on a small scale of commercial machinery and comprises the following: 2 sets of cards; 1 24-spindle mule; 1 shear; 1 press; 1 wool duster; 1 shoddy picker; 2 felting stocks; hardener, steam table, etc.; 1 fulling mill.

It is realized that the results obtained on these machines will not be directly comparable with the results which would be obtained on machines of commercial size, but much of the preliminary work on an investigation can be successfully carried out in this laboratory.

How Manufacturers May Co-operate

While the Bureau has on its staff several technical and practical men to carry out research problems in these laboratories, it has been suggested that such research might be accelerated with the active cooperation of the industry.



TEXTILE MILL OF BUREAU OF STANDARDS. VIEW OF COTTON EQUIPMENT LOOKING TOWARD WARPING AND WEAVING

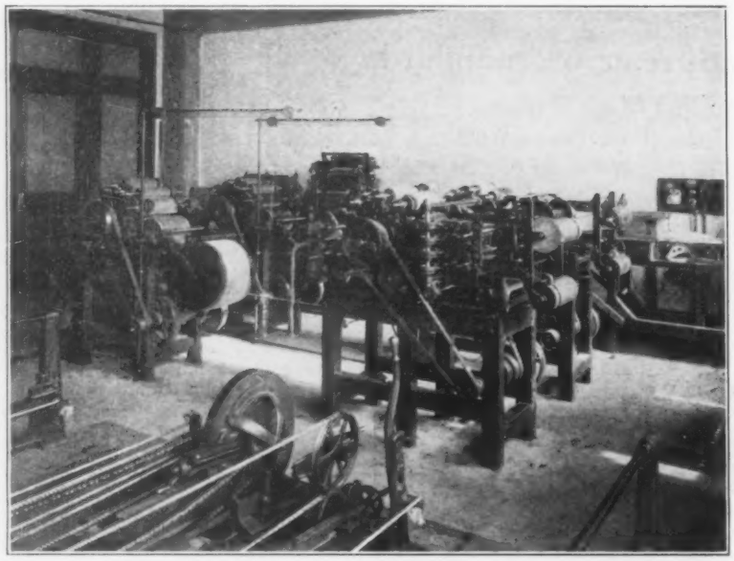
TEXTILE MILL OF BUREAU OF STANDARDS. VIEW OF COTTON EQUIPMENT, LOOKING TOWARD CARDING AND OPENING

possibly by sending technical and practical representatives to work jointly on the problems. Authority already exists to permit the use of the Bureau's facilities in such manner subject to such proper restrictions as the Chief of the Bureau might prescribe.

the industry as a whole and cannot be restricted to the use of any one individual.

Other Resources Available

The resources of other sections of the Bureau may be drawn upon for information if the need arises. This in itself is a very important factor to be considered, as it will eliminate the need of many contemporary investigations along with the primary problem.



TEXTILE MILL OF BUREAU OF STANDARDS, SHOWING MINIATURE WOOL CARDS AND CONDENSERS.

The general facilities of the Bureau are so varied that technical visitors are constantly present studying new methods of research, and testing, and new forms of apparatus. In fact, this has proven a most useful method of disseminating the results of the Bureau's work. For example, the new method of testing of steel and steel products by magnetic means was partially developed at the Bureau with the active cooperation of a technical engineer detailed to the Bureau for several years for the purpose by one of our largest railroad companies.

The results of any investigation conducted at the Bureau are available to

It is thought that by this method of cooperation a great many problems can be solved which, because of the expense or lack of proper equipment, cannot at present be taken up by the individual manufacturers.

It is the desire of the Bureau to extend its activities in this field in the directions which will be of the greatest benefit. To do this it is first necessary that the manufacturers present the problems and then co-operate with the Bureau in their solution.

Home for Girl Workers

Modern Building Provides for All Their Needs at Danville Plant

IF a textile manufacturer of the last generation had been told that his successor would build a dormitory for girl employes equal to or better than any college dormitory he probably would have been quite content to pass on. And yet that is just what has been done at the Dan River plant of the Riverside and Dan River Cotton Mills, Danville, Va.

Its name is Hylton Hall, in honor if Miss Hattie Hylton who has been superintendent of the welfare department at the plant since its inception in 1908. The name was given as the result of a prize contest conducted by the mill paper, and received the unqualified approval of the management.

The building itself is a fine example of modern construction. It is of colonial design, of red brick with white trimmings and silver gray roof. There are large columns at the entrance, and large screened porches on either side. It is shaped like the letter E, the central part containing the dining room, kitchen and serving rooms, assembly hall and class rooms, gymnasium, swimming pool and showers, infirmary with sun parlor and roof-gardens, large public parlor, with ten small parlors opening into it, thirteen large living rooms, lobby and formal parlors on either side, and reading and writing rooms lined with bookshelves. The end sections of the E form the dormitories conposed of single and double rooms. Each room contains a separate clothes-closet for every girl, stationary washstands with hot and cold water, and medicine cabinets. The furnishings consist of single iron beds with best grade felt mattresses, princess dressers, tables and chairs, with washable rugs on the floors and dainty curtains at the windows. The walls are tinted soft cream and the woodwork is ivory.

The equipment of the building includes steam heat, a modern steam laundry and a refrigerating plant, with drinking fountains in every hall.

Privileges

The dormitory accommodates 225 young women between the ages of 16 and 35. A uniform price is charged—$7.50 per week for room, board and laundry, payable in advance on Saturdays.

There is a trained director in the gymnasium which is fitted up with modern apparatus, swimming pool and showers. If this exercise does not prevent all sickness, there is a well equipped infirmary where nursing and physician's care is given free of charge.

Plans are continually being made for the entertainment of the members. Friday night is "Home Night," when the girls welcome their young men friends for group singing and games. Once each month a large party is held.

In addition, the girls may entertain their men friends any evening from 7.30 to 10 o'clock in the large parlor on the second floor or in one of the smaller parlors that open into it.

There are six guest chambers where fathers and mothers who wish to visit their daughters are put up. They may stay one week at no expense to them.

Classes may be arranged in cooking, sewing, hand-work, millinery, singing, dramatics, civics, Bible study, as well as simple instruction in the elementary branches.

The management of the dormitory is entirely non-sectarian, the house-mother and her assistants belonging to widely varying churches.

The entire atmosphere of the house is a homelike one. There is nothing institutional about it. Girls are made to feel at home from the start. The maintenance of a dormitory of this nature is certainly a long step towards the realization of a happy, healthy spirit among the workers.

Cone Plant Extensions

Plans of Importance for Future Construction Outlined

THE past year for the Cone Mills at Greensboro, N. C., consisting of the Proximity Manufacturing Co., the White Oak Cotton Mills, the Revolution Cotton Mills and the Print Works, has been the most successful in the history of these enterprises since they were established in 1895. General improvement and extensions continue to be made and much new development work is being planned for the near future. One thousand new looms of the Nordray type, built by the Hopedale Manufacturing Co., Milford, Mass., have been purchased and are now being delivered. These will be placed in present buildings and the necessary yarn to operate them will be obtained by operating present carding and spinning equipment at night, and possibly by the purchase of some yarn in the market. Extensive plans are under consideration for installing further sanitary sewerage in all the mill villages of the companies represented by this group of mills and further landscape gardening will be added as well. A large modern hotel has just been completed at the White Oak Mills. This hotel is equipped with steam heat, private baths, and modern and sanitary fixtures throughout. The first floor is reserved for women and the second floor for men employes of the mill.

All these mills are equipped with sanitary drinking fountains for the operatives, and a new refrigerating plant has just been installed at Proximity Mill for operation during the summer months. It is claimed that this refrigerating plant will enable the drinking water to be kept at any temperature desired. Several new deep wells have been sunk during the past year; one at White Oak, 8 inches in diameter and 487 feet deep, and one at Proximity, 8 inches in diameter and 300 feet deep, will furnish an abundant supply of pure water for drinking and other purposes.

Plans have also been made and work is to begin soon on 100 new cottages for operatives. These are made necessary to care for the 1,000 new looms being added at White Oak.

As evidence of the prosperity of the mills for the past year and evincing the generous spirit of the management of these mills toward their employes, more than $250,000 was distributed in bonuses during Christmas week, 1919. In addition to the bonuses a general advance in wages of 10 per cent. has been made since January 1, 1920. This advance was made voluntarily by the management. The Cone Mills are known far and wide as pioneers in welfare work, this being a great "hobby" with the late Caesar Cone, who with his brother, Moses Cone, established these mills twenty-five years ago. Bernard M. Cone and Julius W. Cone, president and vice-president, respectively, and brothers of the late Caesar Cone, are carrying on the extension of the welfare work as well as developing other phases of their progressive enterprise.

As a lasting tribute of respect to Caesar Cone, a marble mausoleum, said to have cost upward of $30,000, has been erected on a hillside overlooking the mill village at White Oak Mills, this spot having been selected by Mr. Cone before his death on March 1, 1917.

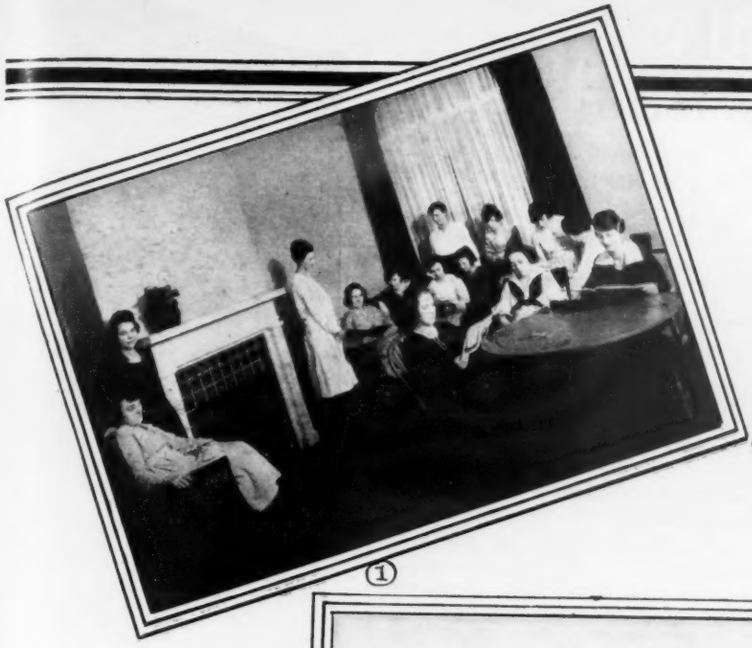
BUILDING NEW MILL

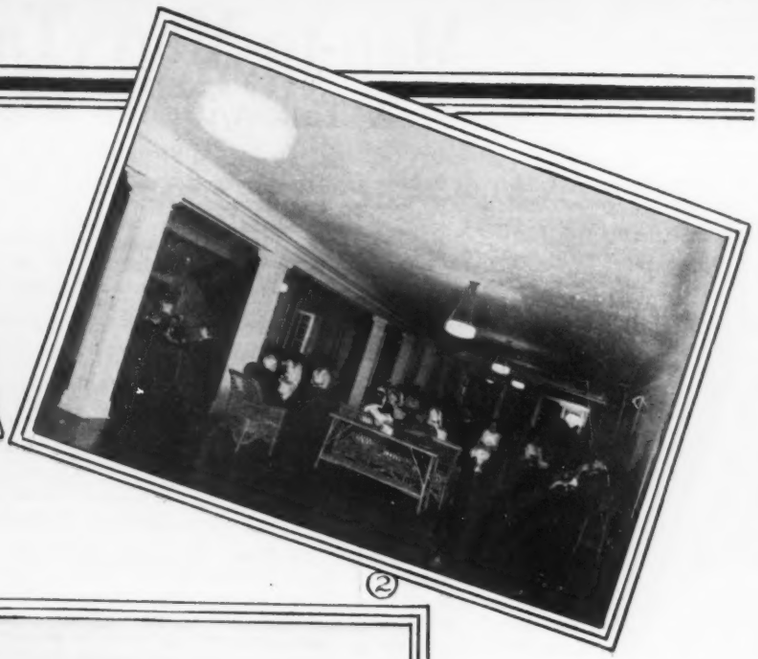
Notaseme Hosiery Company Planning for Further Extension

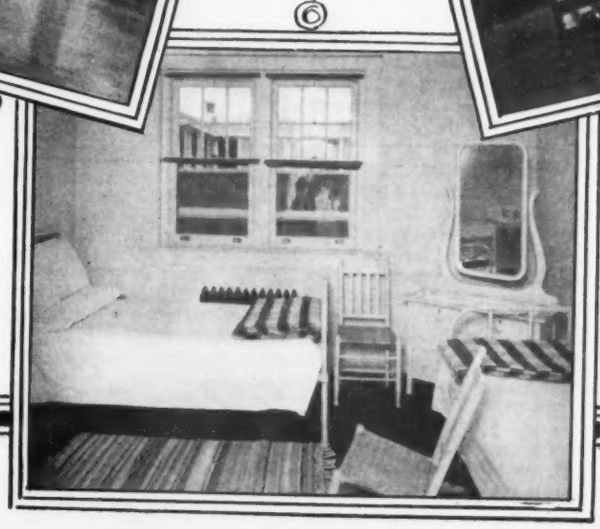
The Notaseme Hosiery Company, Philadelphia, Pa., is building a large new plant at Atlantic, "I" and Venango streets, in the northwestern part of the city. The buildings under construction at present consist of a mill building and a power house. The mill building is "U" shaped, each wing being 142 feet 8 inches by 54 feet 8 inches, with a connecting section 51 feet 10 inches by 54 feet 10 inchs in size. It contains approximately 94,000 square feet of space. Eventually the wings will be extended to a distance of 250 feet, which will make the building "H" shaped. The power house is 48 feet, 4 inches by 107 feet 4 inches, one-story high, except that in one-half of the structure, used as an engine room, there is a basement.

Steel trusses are used for the roof to give a clear span. In the mill building, stairway and elevator shafts, pipe shafts, etc., are built in separate towers outside of the connecting wing. The mill building is four stories and basement in height and has two towers for sprinkler and house tanks.

The exterior consists of concrete columns, floor beams and sills with brick curtain walls. Steel sash with plain glass is used. All floors except







Girls' Dormitory, Riverside & Dan River Cotton Mills, Inc., Danville, Va. (1) *A corner of one of the social rooms.* (2) *One of the parlors.*

(3) *The building shortly after completion.* (4) *Dining room.* (5) *Reception room.* (6) *A sample chamber.*

Man-to-Man Talks

No. 3—A Talk with the Wage Earners

By *Dr. Charles A. Eaton*

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IN this friendly talk I prefer to address you as wage-earners rather than as workingmen.

Apart from children and aged and infirm, there are only two general classes of people in our country to-day. Producers and Parasites. The Producer lives by his own efforts and by thus making his own living he helps other people to make their living. The Parasite lives on the results of other people's work. This is a small class, but we must make it smaller still.

The Producers are all those who add something by their own personal effort to the commonwealth. The farmer and his wife and hired man; the common laborer putting down gas mains or building roads; the skilled mechanic; the teacher; the preacher, journalist, artist, doctor, clerk, merchant, banker, officers in corporations, sailors, trainmen, soldiers, policemen, firemen, nurses, judges, public officials,—all are workers because what they do adds something to the total possessions of the Nation. Mothers who care for their children are the highest grade workers in the world with probably the lowest money pay.

By the commonwealth we mean the country's total stock of food, goods, ideas, ideals, moral forces and institutions. You add something to this general fund by your day's work. As proof that you have done this general service you are handed a certain amount of money. This money is simply a blanket order on the general stock of wealth in the country which you can have honored as you desire. If you want music, your money will buy something produced by the artist. If you want food, you present your cash order and get what you want, which has been produced by the farmer and is waiting for you. If you want ideas, the teacher, speaker, or writer is at work producing for you, and your money, earned by your effort, is an order for what you want.

We used to divide cash pay for personal service rendered into salaries and wages. And wages were supposed to be less in amount than salaries on the ground that brain work adds more to the commonwealth than does manual work.

This method of division has been changed of late and the mechanical and manual worker is getting more for his services than does the average teacher, preacher, farmer, or public servant.

Justice for All

It would therefore be a waste of time and an insult to your intelligence (even if I were so minded), for me to try and put over any sob stuff on you about your present condition as wage earners. You now as a class occupy the best position ever achieved by wage earners in the history of the world. I am glad that this is so. I believe it is good for our country and good for the individual citizens of the country that the general level of prosperity should be raised and kept as high as possible in accordance with justice and sound economic principles. A society in which every worker is a high producer and receives high pay therefor, is the nearest to an ideal society this world can have. But this prosperity must be evenly and justly distributed. It won't do to stuff one class and starve another. You cannot be generous with one and niggardly with another. You must have even justice for all. And this even justice must be determined and applied by the authority and action of all individuals and classes in the nation, and not by any one class or group of individuals. "All for each, and each for all," is a dangerous doctrine if applied to a class only. But if it be applied to the whole people of the nation it becomes the very foundation and expression of free, sane, progressive and prosperous democracy.

The question is how you wage earners of America can keep what you now enjoy of prosperity and at the same time do your full duty as citizens of the commonwealth in helping the rest of us to our place in the sun.

The first essential for you and for all of us is to face our problems as *Americans*.

We must never abandon the American point of view in thought or action, nor fail to measure every person, policy and fact by American standards of sense and justice.

The Wage-earners of this country are being bombarded just now by many theories that offer themselves as a substitute for Americanism and claim to be better than Americanism.

Internationalism offers itself as a substitute for Americanism and claim to be Stripped of all its fine phrases, this false Internationalism is a class movement and theory which originated in the backward nations of Europe and seeks to form a combination of the wage earners in all countries against all other classes in those countries. It wants to use you free and prosperous American workmen to pull chestnuts out of the fire for European proletarians who know nothing of freedom, political or economic. Because they lack the guts and gumption to make themselves free they think they can get you to do it for them. But if they cannot free themselves no one else can free them. And the reason they are enslaved and you are free is largely the fact that they work always as a class, and for a class, while you work always as citizens of a country and not as members of a class. In America no man is entitled, under our constitution, to consideration because he belongs to any particular class, creed, breed or party. He is entitled to consideration because he is an American citizen and a human being and for no other reason. Indeed no other reason is necessary.

Editorial Note.—**The third article in the series of Man-to-Man Talks by Dr. Charles A. Eaton is in the nature of advice to the operative. There are five of these industrial articles, the first appearing in Textile World in its issue of January 24 was entitled "A Talk with the Boss." The second, "A Talk with the Foreman," appeared last week. The last two articles of the series will be**

No. 4.—A Talk with the Labor Leader.

No. 5.—A Talk with the Public.

Dr. Eaton, the author of the series, is peculiarly fitted to give this character of advice to both employer and employe by reason of his association during the war with workmen in the shipping yards of the country controlled by the U. S. Shipping Board. He has also had much experience in industrial betterment work, to which in conjunction with literary work he has devoted himself since resigning from the ministry.

In Europe the wage earner will never come into his own until he abandons his class program and goes to work to make of himself a free citizen in a free country. You cannot permanently advance yourselves above the general level of the country to which you belong and which belongs to you. The best way to work for yourself is to work for your country. The so-called class struggle is simply magnified personal selfishness and selfishness is always blind, always stupid and always fails.

Revolution Un-American

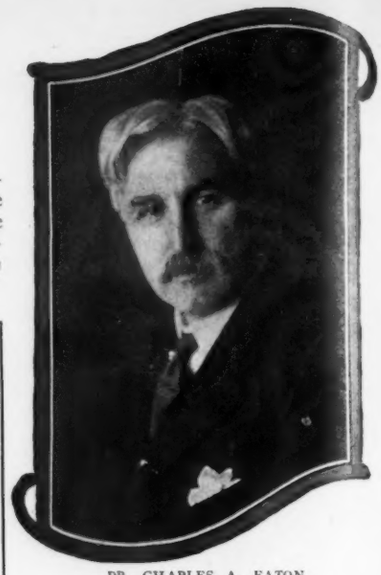
You are hearing much talk about the "Revolution."

Revolution means the taking of what you want when you want it by force. And force means war, bloodshed, wounds, waste and ruin.

This is not the American way. In America Public Opinion is the last court of appeal, and as soon as public opinion is convinced by knowledge of the facts as to the justice of any claim advanced by any citizen or group of citizens, that claim will be allowed peaceably and with good will.

Revolution is only a pretty name for anarchy and rebellion. It destroys and tears down but cannot build anything. Destruction is a low order of activity and requires neither brains nor character. Mother O'Leary's cow kicked over a lantern, set fire to the city and destroyed Chicago. And she probably was not much of a cow at that. It took brains, courage, industry and sacrifice of a great free people working together for years to rebuild the city. No one class could have done either the building or the rebuilding but any old class, running all the way from cows to communists, could have destroyed it in a night.

Great emphasis is being placed to-day upon the right of the wage-earner to do certain things. I am prepared to grant the justice of such rights without argument, because I believe in them. Every American citizen has the right to strike or not to strike as he sees fit. He has an inalienable right to bargain collectively or individually; and he has the right to organize or to refuse to organize. He, like every other citizen, is guaranteed under our constitution the right to 'life, liberty and pursuit of happiness," and he has the right to do or not do anything that is permitted by the law of the land.



DR. CHARLES A. EATON

We must remember always that the wage-earner has no rights under our free government which do not belong as well to every other citizen. The same rights and the same duties belong alike to all. If therefore, you and I strike to enforce a right which belongs to us alone as individuals or as a class and does not belong to all other citizens as well, we are acting without either right or justice. And if in striking even to enforce a common right, we imperil the safety and lives of the rest of the nation we are doing wrong.

The reason is this. Every right is matched by a corresponding duty. And every individual right is modified by a higher right of the society to which we belong. I never can have the right to starve, freeze, or impoverish other folks in order to collect more pay from my employer for myself, any more than my employer has the right to injure the community in order to increase his dividend.

In the words of Calvin Coolidge which express the fundamental faith and law of the American people,—"There can be no right for any one, anywhere, any time to strike against the public safety."

Increased Production Necessary

"*Production*" is a big word these days. And you will be told that this is just another scheme to make you work harder to swell the fortunes of the profiteer. But this is one time when you and I and all other honest men must tell the fault-finders and trouble-makers to go away back and sit down for awhile until we get at the facts.

Students of political economy tell us that the total products of labor are never much more than from two to five years old. You wear out your new clothes in a year. You consume the wheat and fruit and meat and fish and milk crop as fast as it is produced. In all these necessities of life, during normal times, the world is never much more than two laps ahead of the wolf.

Now we must remember that for the past five years the chief business of the world had been the destruction of property and the killing of men. Add

(*Continued on page* 546)

Scarcity of Merchandise Controls Knit Goods

Underwear Market Disrupted Through Limited Production

THE war was over; mills were going back on to civilian work; production would increase materially and prices would recede to near normal levels. This was the general belief of underwear buyers at the start of the year and the basis upon which the majority of them were intending to operate. They were confident that the market was once more to swing into their control; they said so openly and they discussed it at their convention in January. They were to dictate largely to knitters how much and for how much they could sell.

For the first three months of the year it looked very much as though the confidence of buyers in their belief was not misplaced. Demand lagged; jobbers were purposely staying out of the market and price levels were shaky. Mills were shutting down or curtailing operations to offset the lack of demand. Then prices actually broke and levels were quoted in many instances that were far below actual production costs. This condition lasted well into March, yet underneath the surface there was a steadfast confidence on the part of knitters that the situation could not continue so depressed and that the turn in their favor must surely come before any great length of time.

They knew the true conditions in mills only too well. They were aware of the attitude of employes toward their work, of the high prices of yarns and raw materials and of the difficulties experienced in getting supplies in sufficient amounts to allow the selling of underwear for long periods ahead. And what was the most serious of all they knew that they had lost between five and six months supply from their civilian merchandise through the previous war demands.

Jobbers Begin Buying

Then toward the latter part of March came the change, and since then the majority of jobbers have regretted that they did not buy earlier in the year. Prices had reached what was really a ridiculously low level by that time and jobbers began to realize the truth of the situation. A buying rush soon started that from its inception had only the effect of increasing prices and lessening the individual opportunities of jobbers to secure a sufficient supply of merchandise to cover themselves fully for a season.

Mills were beginning to experience considerable difficulty in keeping production up to the abnormally low amount that they had previously been getting. There was a decided indisposition on the part of most operatives, and particularly the girl employes, to remain steadily at work for an entire week. They had been surfeited with high wages during the days of war and were both prosperous and independent, and in many instances would work only when they cared to and on the class of work they liked best. Attempts to buy yarns developed the information that spinners would sell only on close delivery margins and knitters could not figure ahead for more than sixty to ninety days. The only possible result was a loss in output in the knitting mills, and as weeks progressed into months knitters found it extremely difficult to keep production up to even 60 per cent of normal.

Jobbers' shelves had been well cleaned of merchandise during the latter months of the war and they needed stocks. Now that they were satisfied that the market had reached its low point they were determined to buy, and when they started, their former resolutions of buying from hand-to-mouth and forcing down prices were soon forgotten. It became a scramble to get merchandise regardless of price, but their attempts to load up met with little important success. Knitters soon found it necessary to sell goods only on an allotment basis and to confine deliveries to periods not exceeding three months in length. Jobbers kept close to the market, searching in every possible place for merchandise and buying with little regard to prices demanded. Premiums were not infrequently offered, but knitters confined themselves to a conservative method of dealing and jobbers who were not "good customers" were able to get but little merchandise. Allotment was done on a basis of about 60 per cent of normal production, and in many instances upon the initial opening of lines buyers could not get more than 15 to 25 per cent of the amount of goods they intended to buy.

The allotment method of distribution eliminated the formal seasonal opening of lines and practically wiped out the market in the accepted sense of the word. The lightweight season extended over months and encroached on the early part of the heavyweight season, and the start of the heavyweight season was delayed for a month or two. Mills would sell for a three months' period, and then when they were sure of the amount they could produce for the ensuing three months they again opened their books for orders. This was the basis adhered to all year in the distribution of merchandise, and it proved to be the only safe way of avoiding unpleasantness, and of keeping the product of mills as widely distributed as was possible under existing conditions. While some mills excelled others in their ability to produce goods, it is safe to say that the entire production of the industry ranged only from 60 to 70 per cent of normal.

No Real Price Basis

During the entire year there was no real basis on which to quote prices. At the start mills were close on their quotations, but the break that followed the opening of the year resulted in a wide disparity and then when the recovery commenced prices were based more upon conditions within individual mills than upon conditions existing in the open market. This resulted in prices, that normally would vary but a few cents per dozen, often differing all the way from 25c to $1 per dozen. There was demand for goods at no matter what level the knitters asked, yet the latter did not take undue advantage of buyers and force them to pay unwarranted levels. All costs entering into production had swelled exceedingly; wages were more than a hundred per cent higher than pre-war levels; raw materials were continually advancing and yarns had reached such extreme levels that knitters were accusing spinners of excessive profiteering. Goods were priced for a short delivery period, quickly sold up and withdrawn. When they were reopened prices were higher, so that at the close of the year they were varying from 50 to 75 per cent above prices at the start of the year. As the year progressed prices became more and more firm at the continually advancing levels, and after the first three months there was never even the slightest hint of a possible break in values. In fact, the strength of prices has been one of the most important features of the year and gave forecast in the closing months of the year that new high records would be touched in 1920.

Scarcity Disrupts Market

There is no denying that for the greater part of the year the market from a selling standpoint was entirely disrupted, and the real factor causing the disruption was the scarcity of merchandise. It was expected at the start of the year by almost all the knitters that there would be a scarcity, but few of them really believed that it would be as acute as it later developed. Knitters were prevented at the outset from definitely planning on output through the withholding of orders by jobbers. Then when the latter started buying a congestion resulted, and there was far from enough underwear to go around. About that time strikes were inaugurated and mills in many sections were entirely closed for several weeks. With the ending of the strikes and the granting of increased wage schedules operatives became less attentive to their work, showed a decided inclination to be independent regarding the class of work they would do and were continually taking days off. There was a scarcity of skilled operatives; they knew it and were prone to take full advantage of it. Mill officials could do little in the way of reprimanding, for sharp words or criticism usually resulted in the loss of the employe and several associates.

But these were not the only factors nor were they the most important in limiting production. Seemingly the greatest of all, or at least knitters claim so, was the situation in the yarn markets. From the very first of the year there was unusual difficulty in buying yarns in sufficient quantities to cover for more than two or three months at a time, and each time a knitter reentered the yarn market he usually was quoted a new and higher price. Of course, at times during the year there were fluctuations in yarn prices, but each decline was followed by a greater recovery, and in the finer counts prices reached undreamed of levels.

Other contributing factors to the loss of production were the unreliable transportation facilities and the inability of knitters to appreciably increase their equipment because of the sold-up condition of machinery manufacturers. With such a heavy demand for merchandise during the greater part of the year it seems likely that there would have been a considerable expansion in mills if the machinery to equip new additions had been available.

Seasonal Openings Largely Eliminated

Through the allotment method of distributing underwear for limited delivery periods there followed the elimination of regular seasonal openings. In January there was a showing of lightweight goods, the openings having been delayed from the previous November, but buying did not start and it was well toward the latter part of March before the season really got under way. Then with the congestion in the mills it was necessary to limit deliveries to periods not exceeding three months and to amounts hardly more than 25 per cent of what the majority of jobbers wanted. Toward the close of the first three months' period lines were again opened in a limited manner, and in this way the seasons extended over a greater part of the year and not infrequently were interlocked.

The cheap lines of balbriggans, the old 25c retail garments of pre-war days, opened the year at between $5 and $5.25 per dozen. When it became evident that the jobbers were apparently going to play the game to the limit to force down prices, the break came, gradual at first, but soon of a sharp nature. As a result a few mills were quoting down to $3.25 per dozen on balbriggans that cost them over $4 to produce, and the top of the market was $3.75 per dozen. But the low prices did not last long, and a month or so later prices were back to higher levels than before the decline. In the finer lines there was not this wide fluctuation, for production costs were more closely governed by the relatively higher prices on the fine count yarns, and also through the better demand for the fine grade merchandise. The heavyweight openings did not come until a time in the year when the situation was extremely firm, and instead of trying to avoid breaks it was a question of how much were prices to advance from opening levels.

Hosiery at New High Price Levels

Advances Started Early in Year and Were Never Stopped

HOSIERY men have seen prices touch new high levels during the year of 1919, and at the close the trend on practically all qualities was still upward, forecasting levels for the new year that but a year ago would have been believed impossible. There were fluctuations for a while during the early part of 1919, but it did not take buyers long to realize the exact status of the industry, and when this realization was expressed in active buying the resultant advances in prices continued steady and unchecked. Quotations that seemed high in the early months were low in comparison to those ruling in the closing weeks.

The market at its close was the exact opposite of its start. At the first of the year buyers were of an indifferent attitude; they were rather confident in the belief that there was to be a slump in prices, for on the face of things they saw no reason for the continuation of war-time levels with the war ended.

Opinions were frequently expressed by buyers that it would not be long after the opening of the year before selling agents would be coming to them with lower prices. So confident were they that they declined to buy and in their meetings they said they would not buy until prices were made "right," and furthermore, until the knitter would guarantee them against further declines.

It must be admitted that for the first three or four months there was considerable promise that jobbers were going to realize their expectations. There was considerable uncertainty in industry in general in this country at that time and the hosiery industry did not escape its share. Knitters in many instances were inclined to overlook the inherent strength of the market, to forget the threatening scarcity of hosiery and its rapidly rising production cost, and began to soften their quotations. In a small way this stimulated buying, but the big demand was still lacking. Variations, rather wide in range, began to develop and there were various quotations on similar lines of goods.

Jobbers Start Operating

Factors who had been overlooking the true situation in the market began to realize in May that there was a strong possibility that the productive capacity of the mills in general would not be sufficient to fully cover their needs and then buying began in a more earnest manner. It needed only such a development to cause a reaction in prices, and the upward movement immediately started. From that time to the very close of the year there was no checking the upward trend and levels ruling in December were higher than could have been thought possible up to as late as March. In the latter months prices were generally 50 per cent. higher than they were at the year's start, and on some of the finer qualities they were 100 per cent. or more higher than the levels at which they opened the year.

It would be difficult to give a correct summary of the action of prices throughout the year that would cover the market as a whole, for quotations depended most of the time upon conditions peculiar to individual mills and asking prices were based upon manufacturing conditions rather than upon competitive conditions in the open market. It is interesting to note, however, that the advances have meant the practical elimination of the 25-cent retail price; have advanced the 50-cent retail stocking to over $1, and have lifted the familiar $1.50 full fashioned silk stocking to $3.50 per pair on the retail counter, giving promise in December of lifting the latter price to at least $5 per pair.

Many Production Difficulties

Knitters suffered through many production difficulties during the days of the war, but their suffering then was light in comparison with their experiences in the greater part of 1919. It had been rather confidently expected that the ending of the war would release the tight grip of a general scarcity, but the following months proved the fallacy of such belief. More important than all other, probably, was the attitude of labor in its indifference, but of hardly less importance was the situation in the yarn markets.

Excited by the wages they had earned, or at least were paid, during war days, labor unions were prompted to go after further advances, and manufacturers, after one or two trying experiences, realized that there were but two choices: either pay the advances or close the mills. The natural result, of course, was submission to employes' demands. Advances granted throughout the year brought wages up to a point nearly 150 per cent. above those prevailing just previous to the start of the war. The most disappointing development in this connection, however, was that instead of increasing the working efficiency each succeeding wage advance seemed to lower the efficiency. Operatives as their wage schedules advanced showed a greater indifference to work, were more independent in their attitude, and were ready to quit immediately if crossed by the management.

In the yarn markets the situation became more and more perplexing as month followed month. Because of the nature of the demand for hosiery, the voluminous call for fine qualities, knitters had to devote most of their yarn trading to the finer counts. In such descriptions they came in contact with an outside competition that not only forced yarn prices to exceptionally high levels, but also created an acute scarcity. Spinners confined their sales to short delivery periods, most of them refusing to sell for periods longer than three months. At no time during the year was there a certainty that yarns would be delivered according to specifications, for spinners found it just as difficult to maintain operating schedules as did knitters, and succeeding delivery delays were the only possible result. The prices of yarns most truly reflected the situation in the market, and toward the close of the year instances were not uncommon where yarns were quoted at prices three to four times as high as they were in March. Particularly was this true in mercerized yarns, and in these the situation became more and more discouraging with the progress of the year, predicting in the closing month that mercerized stockings would have to be entirely withdrawn from sale for several months.

Both of these factors combined not only made the production of hosiery highly uncertain, but confined it to narrow limits. The more fortunate knitters averaged about 70 per cent. of normal production, but the great majority got little more than 50 to 60 per cent.

A Year of Fine Qualities

The year as a whole was a year of fine qualities; that is, the preponderance of buyers wanted nothing but the fine gauge lines. This caused a wide disparity between prices on fine gauges and the low-ends, and the old familiar schedules of difference in prices were entirely eliminated. Demand confining itself largely to the finer gauges was the result of two important factors. The more prominent of the latter was the fact that consumers generally were prosperous and intent upon satisfying a desire to wear the best quality goods. The other was that buyers had become surfeited with low-ends during 1918. They had bought extensively of such qualities, for there was no other to secure, and they had not realized the demand from the retailers they had expected. The result was the carrying of a plenitude of low-ends at the start of 1919, and all through that year retail consumption was not interested in low qualities.

Silks were by far the most attractive seller of the year, and most knitters could have sold their production over and over three or four times. Closing 1918 the silk mills were behind on deliveries, not a few as much as six months, and during 1919 they lost instead of gained production. Sales were made on a strict allotment basis, with many of the mills necessarily confining their distribution to not more than 20 per cent. of buyers' demands. Full fashioned lines were almost completely out of the market for the entire year; trading was done only on a basis of the actual productive capacity of the mills. There was no formal opening of lines. Knitters knew who wanted the hosiery, and whenever they were able to take on additional business they simply advised customers of the amount they could have and the price they would have to pay, and the order was immediately forthcoming. Lines that started the year at around $21 to $22 per dozen had advanced to $35 or $36 by the closing months, and gave promise of commanding at least $42 per dozen for 1920. Boot silks were similarly positioned and prices advanced from around $11 in January to near to $20 in December.

Artificial silk hosiery was not in the open market at any time during the year. The situation in artificial silk was directly responsible. Domestic production of the material was far less than normal consumption and imports were entirely cut off. To further complicate the situation a demand for the silk arose from other sources, notably in the manufacture of tricolette for women's wear and in decorations for sweaters and bathing suits.

Turn to Mercerized Lines

With silk lines entirely consumed, demand turned to the next best offering in the way of attractiveness, the mercerized lines. Early in the year such goods were comparatively plentiful, but this condition did not last long and it soon became apparent that there was far less supply than demand. Knitters undoubtedly would have been able to care better for the needs of jobbers had the yarn situation been different. As it was, however, the later development closely approximated that of silk hosiery. Lines that seemed in fairly plentiful supply back in May and June were quickly snapped up and the majority of mills were forced to withdraw. Production in not a few instances was oversold for the specified delivery periods, and contracts intended for early expiration were necessarily carried over until well toward the end of the year. It became necessary, as in other departments of the market, for knitters to hold their distribution to a strict allotment basis and none would sell for a period of more than three months ahead. July, August and September started the rationing periods, and when lines were again ready for the last three months of the year the amount for sale was materially smaller than the previous three months, and when it came time to book business for the first period of the new year knitters were so uncertain as to just where they stood that they deferred the opening of lines, and the year closed without mercerized hosiery in the open market.

An idea of the situation at the close of the year is best obtained by a review of a few prominent price quotations: Women's 260 needle, made from a 2-60s yarn, were held at $8 a dozen, while previous to the war a similar stocking retailed at 35c. per pair; misses' 336 needle ribs were selling at $5.75 per dozen, and up to $6.50 was asked for deliveries during the first three months of 1920; mercerized socks with cotton top were bringing close to $4 per dozen, and an all-mercerized sock brought up to $4.85 per dozen.

Woolen and cashmere socks were not in the open market throughout the entire year. The scarcity that existed as a result of war requirements in 1918 was never really replenished, with the result that all year these lines had to be distributed on a narrow allotment basis. Prices were nominal to all merchandising purposes and actual selling levels were based entirely upon conditions peculiar to individual mills.

Low-Ends Unattractive

From the first of the year until its close there was no more than a nominal buying interest shown in low-end lines and demand was hardly more than a filling-in character. Considerable of such merchandise had been bought in 1918 and their turn-over was never sufficiently large to bring them into the market for substantial amounts in 1919. Prices varied considerably and in spots owners became uneasy and allowed merchandise to go at levels that meant a selling, if not a manufacturing, loss. Men's 176 needle socks declined from an opening level of $1.05 per dozen to 95c. per dozen, but did not remain long at the lower level, for a flurry in demand and an increase in production costs brought them up to $1.25 to $1.35 per dozen. That there was not considerably more fluctuation in prices on the low-ends is due to one fact alone, the exceptionally high production cost that tended ever upward. At times during the year low-ends were selling at prices that meant no profit; in fact, it is evident that several knitters took losses to move their merchandise and as soon as surpluses were reduced selling levels were again marked up.

Sweaters Go Through Erratic Year

Extreme Quietness and Uncertainty Followed by Activity and High Prices

NOT until late in the year was there any real activity in the sweater market, and then it came with such a rush that most knitters were overwhelmed and many buyers had to go without operating to the extent they had planned.

The start of the year was extremely discouraging to knitters. Jobbers were disinterested, were particularly careful in making purchases, and their initial operations were confined almost exclusively to just covering their sample requirements. They were confident that prices were to decline sharply from the extremely high levels ruling during the closing months of the war, and they were intent upon awaiting the decline before placing business. Re-orders were small and infrequent. The general procedure among jobbers was to send salesmen out with samples and then place business with knitters on a basis of the business booked on the road. Then came the decline in prices. Knitters were running short of orders and shutdowns were facing them. It was wiser, they believed, to take a comparatively small loss and keep their plants running than to shut down the mills and suffer a heavier loss.

The drop was as quick as it was

sharp. Quotations were dropped from 50c. to $1 at a time on dozen lots. The drop continued until selling prices were either on a direct parity with production costs or lower. But the break in prices, instead of stimulating demand, made it all the more cautious, and buyers kept operating on a hand-to-mouth basis to take advantage of any further declines. Trading remained exceptionally dull and gave promise of continuing so throughout the year. It probably would have done so had not a blessing come in the disguise of an apparent misfortune. The operatives of practically all the sweater mills in or near New York chose the dull period to inaugurate a strike for increased wages and shorter hours. It was no short strike, but dragged on for months. This was the beginning of the turn in the market.

Production, of course, was directly affected and it became easily apparent that there was not going to be enough merchandise to go around, even under the schedule on which buyers were operating. Prices were withdrawn and knitters refused to book any business at all. When the strike was ended production costs went up in proportion to the increases granted in wages and operations in the mills were confined to making up for the losses during the time the plants were closed. The market remained in this condition throughout the summer and well into the fall. Business was only of a nominal amount, yet mills were operating to as full extent as possible, making up delayed deliveries. A little additional merchandise was sold, but it was closely confined to the caring for needs of favored customers.

Market Wide Open in November

In the first ten days of November the sweater market experienced an activity that probably was never before known in the association of most of the present-day sweater men with the industry. Buyers from all over the country came flocking into the city, and it was useless to send men out on the road; there was not enough merchandise to go around. In a few days mills were selling all the production they were certain of getting for the fall 1920 season, and lines were quickly withdrawn. Demand was far in excess of supply. The call for goods was far larger than in normal years and production was hardly more than 65 per cent. of normal. The allotment system of distribution was hurriedly adopted by a majority of knitters, and many of them limited their sales to short delivery periods. A few, however, who were amply covered on yarns and raw materials sold for just as distant delivery as the jobber cared, and it is known that a few mills sold their product in full for the entire year of 1920.

Such a condition naturally resulted in sharp advances in price levels and quotations exceeded those of January by 20 to 40 per cent. on similar garments. Wide disparities developed and differences of as much as $10 to $12 per dozen were seen on similar goods. Mills forgot competitive conditions in the open market and prices were based solely upon conditions within the mills. Open quotations were withdrawn and market prices no longer existed except in a nominal way. Instead of small advances in prices they were marked up one or two dollars a dozen at a time, yet the buyers took just as much merchandise as allotted to them and there was a minimum of complaints on quotations.

As in other sections of the knit goods industry, the knitters of sweaters faced many and particularly trying difficulties during the course of the year. Their chief problem, perhaps, was the attitude of labor. Following the strike and the gaining of a substantial wage advance, operatives showed less of a disposition to stay steadily employed. Production was continually suffering from the indisposition of operatives and there apparently was nothing employers could do to stimulate a desire to work.

Worsted yarns, or at least the scarcity of such counts, were just as important a factor in restricting production and in limiting the booking of business. At no time during the year could knitters operate with the least suggestion of freedom in the yarn market. Counts of the desired qualities were never in sufficient supply to fully cover the requirements of knitters, and they were forever scouring the market for additional supplies. There was also considerable uncertainty in basing production costs upon the price of yarns, for the latter were continually advancing. Counts that opened the year around $2 a pound kept on rising until they touched $5 per pound, and all other descriptions advanced in proportion.

So acute became the situation in artificial silk sweaters that not a few knitters gave up entirely the manufacture of such lines and turned over the machinery to the manufacture of tricolette. Because of the scarcity and the high level of the silk, prices on the sweaters became so abnormally high that jobbers refused to carry other than extremely small stocks, and most of the lines were withdrawn from the market.

The closing of the year saw the market almost entirely bare of sweaters that were most wanted by jobbers. A feature of demand was that women's lines could sell as freely as available, while men's goods were in comparatively slow demand. The future gave promise of prices retaining all their previous strength and merchandise remaining scarce for the greater part of 1920.

Democracy Expression of Mill Spirit

(*Continued from page* 196)

The employes earned $150,000 in dividends. The first month a five per cent dividend on wages was declared; the next two months 6 per cent each; the next month 7 per cent, and in December 8 per cent. January's figures are not compiled as yet but there is a disposition to believe that the dividend will have reached 10 per cent for that month.

Then there is the item of labor turnover. The company can get a fairly good estimate of this through its record of the tenancy of its community houses. Previously 10 per cent of these dwellings were emptied and re-occupied every month. This has been reduced to a negligible figure. The importance of this item can be imagined from the fact that Mr. Fitzgerald estimates the cost of labor turnover to have approximated $500,000 a year. He points out however that this is a difficult factor to calculate.

His plant in normal times has always had a rather easy time getting help. But with over 800 employes in the service, it felt the pinch of war time conditions. Last spring there were during a certain period 1,000 looms idle. Today there are none idle—and the company has a waiting list of people seeking employment.

Not a Profit Sharing Plan

Mr. Fitzgerald emphasized the fact that he doesn't consider this a profit sharing plan. His company is not in the least socialistically inclined and he doesn't approve of steps in the direction of giving employes a return on the capital invested such as the stock-holders receive. He considers the dividend a return to the workers for the extra effort they put into their work—purely that and nothing more. The company splits 50-50 with the men on the results of this additional effort and it is therefore to the interests of both that steadily increased efficiency be maintained.

Suggestions

One of the chief effects of Industrial Democracy is the encouragement of suggestions from the workers. Not all of these are valuable. Mr. Fitzgerald stated that probably nine out of ten would not be feasible, but the tenth one justifies the whole system.

"Some of the bills proposed in the House are impracticable," he said. "But this is true in any legislative body, where any member has the privilege of introducing a measure. And you will find that when a bill is submitted to the proper committee, the majority of opinion will give the right decision. The great bulk of men are fair. One or two here and there may not be but you can trust in the average. If you submit a new proposition to the majority, you'll get the right action on it. That's the spirit of democracy.

"Formerly when the management wished to make a change in the system, an executive order was sent out. Nowadays either the cabinet or myself sends the proposed change to the Legislature. Both houses may turn it down. Do I feel that my pride has been injured? Not at all, because if it's rejected in that way, you can rest assured that the proposed plan was an objectionable one and should not have been passed."

Legislation on Wages

The first bills introduced into the house dealt mostly with the question of wages, according to Mr. Fitzgerald. Now he admits that one of the hardest things in the world is to get a just, economic, piece-rate scale. Therefore he welcomed these suggestions from the workers themselves who were naturally the ones most vitally concerned in it.

To solve the problem a joint committee was formed composed of members of the Cabinet, Senate and House. They had before them the great mass of bills on the subject of wages, and the payrolls of the various departments. This committee worked for days and nights at a stretch until they devised what to them seemed an equitable scale. Mr. Fitzgerald stated that he doubted if this whole subject will ever have to be threshed out again. He realizes that there may be isolated cases of dissatisfaction which may be settled separately but he is confident that a scale which has developed from the deliberations of members of their own ranks will continue to receive the endorsement of the workers as a body.

Effect of Dividends

Dividends show an effect in two ways, in Mr. Fitzgerald's opinion. One is the decrease of the number of absentees and the elimination of tardiness. The other is the fact that the workers are impelled to give more of their energy. This latter result, in his opinion, is of tremendous importance. He stated that it is impossible to estimate the enormous waste of labor in an organization such as his. Consequently anything which will tend to decrease this is most valuable.

"We are gradually losing the dividing line between employer and employe," he remarked. "Put us all in overalls and you couldn't tell us apart. We are all workers—that's all."

The Plan in Operation

As an interesting finale to his Danville visit, the representative of this publication had the privilege of attending a meeting of the House of Representatives.

There are normally 117 members in that body at the Riverside and Dan River Mills. The Senate is composed of 67 and the Cabinet of 9.

The meeting was held in the auditorium of the Y. M. C. A. It was opened with prayer, after which came the roll-call and the reading of the minutes of the previous session. There followed, in regular order, unfinished business and new business.

The deliberations of the house were too much of a "family affair" to be detailed here. That is, they were all matters directly concerned with the conduct of affairs at the plant. Nevertheless it is worth while to mention the broad scope of the suggestions made. These covered such propositions as the construction of dressing rooms for certain departments, the equalization of certain individual wage rates, the remedying of minor defects in equipment, the installation of a plant telephone system, and a great number of other proposals, the bulk of which were directed towards increased efficiency and improved working conditions. The deliberations went even beyond these local affairs. At this particular meeting the House had been requested by the Danville Chamber of Commerce to take a sentiment vote on the question of the daylight saving bill. After an eloquent speech by one of the members—a speech which would have reflected credit on any legislative body—the meeting declared itself as unanimously opposed to this plan.

A Safety Valve

There is always the danger of hasty action in such an organization as this. The constitution adopted at the Danville plant provides for this danger by calling for three readings of each bill at three successive meetings. For example, when a measure is proposed it is referred to the appropriate committee. If the committee recommends that it be not adopted, this report stands unless objection is heard from the members. If the committee recommends its adoption, it must then have three readings, and at the final reading, a vote is taken. Thus an efficient safety valve is provided.

Opinions of Members

Three men were asked to give their opinion of the value of Industrial Democracy. These were C. D. Gaver, secretary to Mr. Fitzgerald; L. J. Rushworth, superintendent of the Dressing Dept., and Speaker of the Senate; W. N. Fort, chairman of the House Committee on Adjustments and Complaints. All endorsed it most heartily. Mr. Rushworth stated that while actual facts as to dividends proved its value, the improvement in the general spirit of the plant was an even greater testimonial. He added however that, in his opinion, the success of the plan depended on the way it was introduced—and fortunately Mr. Fitzgerald's vision and initiative in-

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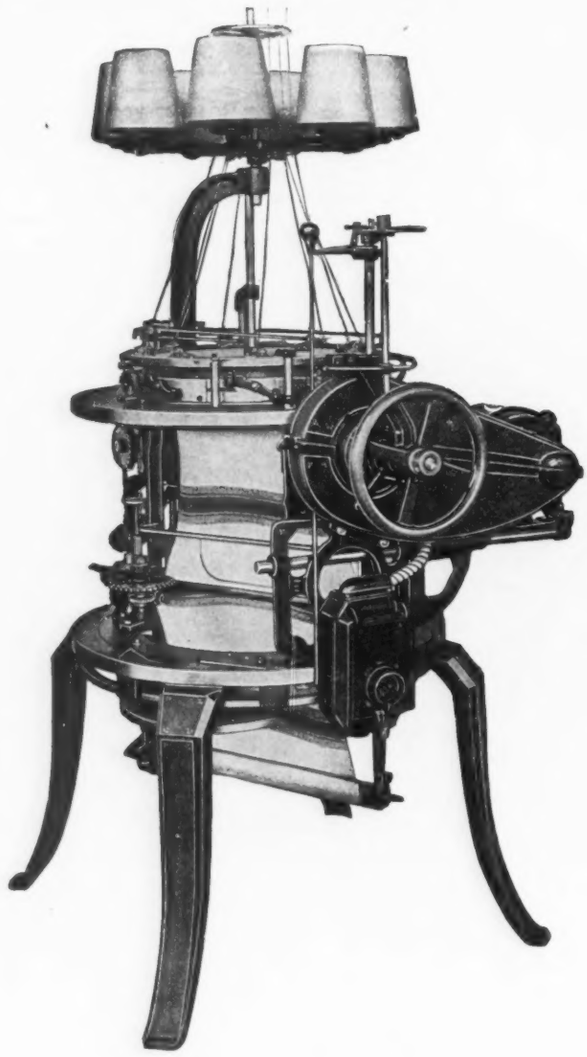

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sured its success in that particular plant. Mr. Fort declared Industrial Democracy to be "the greatest thing that ever happened to the South."

A Real Community Spirit

To the visitor, the whole village of Schoolfield, where the Dan River plant is located, seems to be symbolic of the spirit of Industrial Democracy. The schools, the Y. M. C. A., the new girls' dormitory, the well kept streets, the contented workers—all point to the fact that here is a community of cooperators—not an employer and his employes.

"Some people think that Industrial Democracy can be started overnight and its results instantly achieved," said Mr. Fitzgerald. "That's a delusion. It must be slowly built up on the understanding and support of all the people."

And it is this sort of a foundation which seems to have been laid at Danville.

Many Welfare Plans Accompany Democracy

Shelton Looms Have Successful Employe Representation

"ALL those who have seriously at heart the problems of better understanding between employers and employes have during the past year in many publications (among which is your own) had the opportunity of learning about the fundamentals upon which the principles of Industrial Democracy rest. There is no ready made formula or royal road to the carrying out of such a program. It simply requires that each organization must study its own problems and apply as much of what appeals to the student of available plans as may be added to its own outfit."

These remarks were addressed to this publication by Sidney Blumenthal of Sidney Blumenthal & Co., Inc., owners of the Shelton Looms. There has been carried in these columns a description of the general way in which the plan of Industrial Democracy is working in this plant. Mr. Blumenthal states that it has been in operation there for about three years, and that his company has had many good results from it.

Other Advantages

It is significant to note that mills which have installed Industrial Democracy are generally among the front ranks of those who are working for better industrial relations in all ways, that it is invariably noticed that these plants have at present and have had for some time, numerous other working plans, the general object of which is to improve the conditions of the employes and thus increase their satisfaction. The Shelton Looms is no exception to this rule, as can be seen from the following facts: An expert on illumination has arranged the lighting equipment of the mill so as to minimize eye strain; there is a committee on safety which makes regular plant inspections in the interest of the health and safety of the employes; there is an emergency room in charge of a competent nurse to take care of accidents or sickness; a social service secretary is available for advice on recreation and education, and in fact any matters pertaining to personal welfare of the workers; an athletic association with a membership of over 300 promotes sports of all kinds; life insurance policies are given free to employes after a short length of service; a sick benefit association and a pension fund provides against sickness and old age.

Employe Representation

These numerous advantages are an addition to the form of representative government or Industrial Democracy which carries as a corollary a dividend plan whereby it is possible for an employe to earn up to 20 per cent. of his wages in addition to his regular pay. The system of employe representation installed in this plant is that originated by John Leitch. Mr. Leitch himself started it there. The Senate and House of Representatives meet every Tuesday, the former at 2.30 P. M. and the latter at 3.30. After the meeting, each representative informs the men in the department from which he has been elected regarding all matters of interest which were discussed at the meeting. In addition a bulletin board is maintained which announces meetings and other details.

Representation from the various departments varies with the number of employes on its list. For example, a department of from 19 to 57 employes has 1 representative; a department with from 58 to 95 employes has 2 representatives and so on in uniformly varying proportion up to a department of from 476 to 513 employes which is entitled to 13 representatives. A department with less than 19 workmen is combined with some other department or departments, for the purpose of representation. In order to be a representative an employe must be 21 years old in the case of a male and 18 in the case of a female; must be a citizen of the U. S. and must have been on the payroll of the Blumenthal Company continuously for a period of 12 months immediately preceding regular election.

The Senate is composed of employes whose duties at the mill are of a supervisory nature, and admission to the Senate requires recommendation of the cabinet and a majority vote of the Senate.

The cabinet is composed of the president and vice-presidents of the company and the mill manager and such other officers as the directors may deem necessary.

Referendum and Recall

In order to recall a representative a petition must first be filed carrying the signatures of at least 60 per cent. of all the departments represented by that member. A trial will then be held before a committee of five appointed by the president of the House and the report of the committee submitted to the House of Representatives within two weeks. The latter body then decides by ballot whether or not the member in question shall lose his membership.

Legislative Procedure

Bills may be originated in either the House or the Senate. In either case they are then referred to the other body and if passed are then submitted to the cabinet where they are approved, rejected or amended.

Dividends

Dividends are paid every two weeks on Friday. The percentage earned is the result of a collective effort of all employes in the mill. A chart is maintained which indicates to the employes by means of daily corrections just what their dividend earnings are.

The amount of dividend earnings is based upon:

1 Quality or perfect goods.

2 Merchandise punctuality or production.

3 Regular attendance.

4 Punctuality or elimination of tardiness.

5 Elimination of re-dyes and rejections.

6 Service rendered.

7 Saving of supplies.

8 Reduction of idle machinery.

The following statement from a hand book issued to its employes of the Shelton Looms indicates the way in which the true meaning of the dividend plan is impressed on the workers:

"The success of the dividend plan rests upon us, and the amount of dividends we earn is entirely up to us as individuals. If we would all try to perform the work in which we are engaged better than it has ever been done before, if we will all show a willingness to co-operate with our fellow workers and our superiors, giving our full service, and if we will all be loyal to our mill and fellow employes, we shall establish the reputation of serving best and serving most and as a result of this service our dividends shall be proportionately high."

Industrial Democracy in a Silk Mill

Employes' Goodwill Promoted in Plant of B. Edmund David, Inc.

AMONG the steadily growing number of textile mills which have installed a system of Industrial Democracy or employe representation, one of the pioneers is B. Edmund David, Inc., silk manufacturer, with mills at Paterson, N. J., and Reading, York, Scranton, Beavertown and Wrightsville, Pa.

The system as in force in the Paterson mill of this company is of course similar in detail to that in effect in many other plants. It has been briefly described in a previous issue of this publication. This mill found the inauguration of such a plan especially easy, in view of the fact that many of the workers had a record of long employment with the company and also owing to the unusually pleasant relations which have existed between managers and employes over a period of years. As is customary in the adoption of a plan of this nature the workers were first gathered together in a mass meeting and a foundational policy formulated based upon Mr. Leitch's four corner stones, "Justice, Co-operation, Economy, Energy" and his cap-stone "Service."

The usual governmental bodies are in force, namely Cabinet, Senate and House of Representatives. Absolutely free expression of opinion is permitted and encouraged in both of these latter bodies. Members of the House are elected by secret ballot by all the workers in each department, one being appointed for each 20 members. Meetings are held weekly on company time.

Ways and Means Committee

In order to simplify the legislative procedure, committees are appointed to which various matters are referred and their findings reported back to the House. One of the most important of these committees is that of Ways and Means, composed of members of the House and Senate.

A discharged member is entitled to take his case to a board of appeals. This was provided for in the following resolution:

"All complaints and matters of dispute shall be taken up with the foreman, and if not adjusted to the satisfaction of the employe may be referred to the board of appeals. This board shall consist of the president of the Senate, the president of the House, two members from the Senate and three members from the House. It shall sit as often as necessary and at least once a month. If either of the parties to the dispute is not satisfied with the finding of the board, a final appeal to the cabinet may be taken. No member of the board shall sit in any matter if he is a party to the dispute involved."

Committee on Suggestions

The House also has a committee on suggestions which encourages any and all suggestions for the improvement of the service and for the benefit of the workers and the company. Especially valuable suggestions are rewarded by a prize after impartial consideration has been given. The success of this system is indicated by the fact that 10 to 25 suggestions are received every week and that over half of them receive an award.

Dividend Plan

As in most plants where Industrial Democracy has been installed employes earn a dividend based on such factors as elimination of waste, regularity of attendance and quantity and quality production. These dividends are paid every two weeks.

The officers of this mill have found that Industrial Democracy with its corollary dividend plan is a sane method of promoting satisfactory relations between the management and the workers.

POWER PLANT ADDITIONS

A new boiler room, new stack, concrete service tank and pump house, and steel storage tanks, are being built for the Kerr Mills of the American Thread Company, on South Watuppa Pond, Fall River, Mass. The addition will provide accommodations for two double boiler settings, the boilers to use fuel oil.

The addition to the boiler house measures 70 feet x 39 feet, and consists of a building of brick walls with structural steel columns and roof girders. The floors are of concrete and the windows are triple hung. The inside height above the fire room floor is 36 feet.

The service tank, which is of concrete and underground, and has a small pump house above it, measures 38 feet 4 inches x 24 feet 8 inches, and is divided into two equal compartments 18 x 23 feet each, inside, and 6 feet 6 inches in clear height. The combined capacity of the two compartments is about 40,000 gallons. The steel storage tanks will rest on concrete foundations. Construction work is being done by the Aberthaw Construction Co., Boston.

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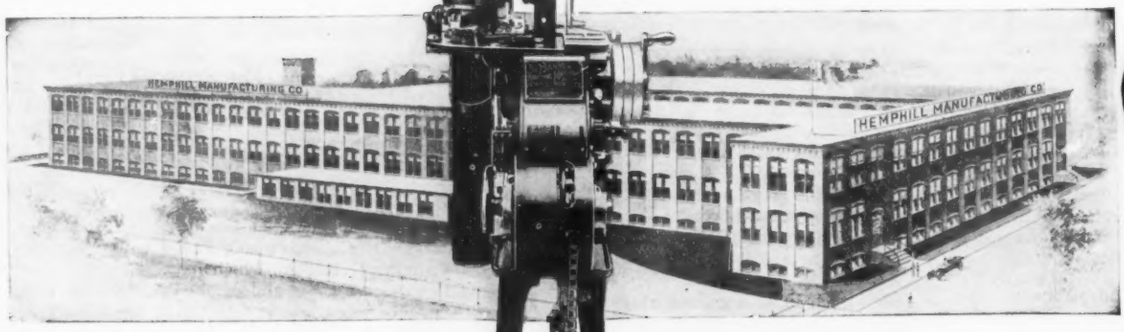

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Employment System in the Textile Industry

(*Continued from page* 208)

other words, the organization of capital brought about the organization of labor.

Thenceforth it became a question, not of harmonious co-operation in production, but which organization should succeed in obtaining advantages over the other. It is obvious that this conflict between the two essential factors in industrial production was most uneconomic, and yet it was a logical outcome of the system itself.

Trying Out Remedies

Efforts on the part of many employers to remedy this uneconomic situation, by establishing profit sharing, life insurance, old age pensions, welfare work, "shop councils," and numerous other schemes to secure the loyalty and co-operation of their operatives, do not go to the root of the trouble. Such measures, right in themselves, are but superstructures built upon an unstable foundation, and therefore cannot be expected to stand the strain of conflict. To-day we have the evidence of this fact on every hand.

There is only one sure way of destroying friction between capital and labor in industry, and that is to remove the cause inherent in the modern employment system. To do this, the system itself must be abolished, and one, built on more scientific lines, established in its place. We do not have to seek far for the principles upon which this new system should be framed. We have them already in operation where the employment of money-power in industry is in question. The same principles may be applied with equal success to the employment of labor-power.

The advantage of dealing with an organized group, over trying to work with disorganized individuals, has too often been proven to require demonstration here. The advantage to the individual in dealing through a protective organization of which he is a member is equally clear. In this fact lies the chief reason for the worker sticking to his union, and often making substantial sacrifices in order to retain his membership.

Collective Bargaining

It has been conclusively demonstrated time and again that where a group of individuals is concerned, organization is the only scientific method of obtaining co-ordinated results.

Will any employer of labor seriously deny that if he could deal with his eperating force as a permanent unit it would be greatly to his advantage as a business proposition? Can there be any question of the advantage, to the individual worker, in belonging to an organization through which he can secure by contract the protection and benefits to which he is entitled?

This form of "collective bargaining" between employer and employed is something very different from that proposed by labor representatives. The form they advocate violates one of the fundamental principles that should govern all contracts, i. e., that only the parties in interest are proper parties to a contract. Strictly speaking, the "collective bargains" made between a labor union on one side, and an association of employers on the other, are not contracts, but are more in the nature of "protocols" between two contending forces, wherein temporary terms of truce are embodied.

Such a form of bargaining in no way removes the cause of friction between the individual employer and his employes; at best, it merely suspends its operation for the time being. It can not, and does not, provide for any co-operation in production and, as experience has proved in many cases, furnishes no real security to either employer or employed.

At Superior Worker's Expense

Like the attempts of Government to regulate by law the rate of compensation and hours of work, it reduces the reward to a deal level, and deprives the more capable and willing worker of any incentive or opportunity to profit by his superiority. It thus puts a premium on mediocrity and thereby tends to restrict production.

That labor representatives should advocate either Government regulation of wages and hours, or "collective bargaining" in this form, proves that either they are ignorant or that they have not at heart the real interests of the individual worker. The employer who refuses to recognize the economic value of having his own employes organized in such a form that he can safely and profitably enter into contractual relations with them, is short-sighted. Collective bargaining with labor in some form is sure to come, and the wise employer will not wait to have the particular kind advocated by the labor leaders forced upon him.

Any organization of employes, to function effectively, must be built from the bottom up; industrial corporations are organized on this principle. The individual shareholders, by their votes, control the management of the corporation. I believe, therefore, that any plan of organizing employes which does not include this fundamental principle, is not only undemocratic, but is bound to work out badly in the long run.

Representative Organization

For example, an association of employes in a manufacturing plant should be allowed to organize themselves, and by their votes choose their own officers from among themselves, without regard to the rank such officers may hold in the employment system of the plant. Under such circumstances, the fact that an employe happened to be a superintendent or a foreman would not of itself entitle him to membership in the executive council or committees of the association. In the natural order of things, those who had attained the position of foreman or superintendent, by reason of their superior intelligence and executive capacity, would, for the same reason, probably be chosen by their fellow members to leading positions in the association; but they would hold such positions by choice of their fellow members, and not through their rank as employes. This distinction I hold to be vital where industrial democracy is aimed at.

The spirit of "caste," or class distinction, which has survived and flourished in the present system of industrial employment, in spite of the fact that we are living in a democracy, is largely responsible for much friction and misunderstanding between the shop force and the office force. This has prevented effective "team work," and resulted in checking production.

Retention of Authority

This does not mean that authority and discipline should be eliminated in our industrial plants; far from it. We have many instances in our sports, where both authority and discipline are rigidly maintained, without in the least disturbing the democratic principle. This principle teaches that voluntary submission to authority and discipline by a member of a co-operative organization working for the common welfare, is the truest democracy.

I have already stated that the principles which we apply to the organization of money power in industry should be applied to the organization of labor power. After all, labor power is only another form of capital and should be treated as such. To quote from a prominent consulting engineer and educator: "Capital is merely past labor."

In framing a so-called "Operating Unit" plan of employment, I have proceded on that theory. The following brief outline of the plan as applied to a manufacturing concern will serve to illustrate this in concrete form:

Typical Operating Unit

Let us call this concern the X. Y. Co. The first step is to induce all the regular employes of the company (exclusive of the corporate officers elected by the stockholders) to organize themselves under the name of "The X. Y. Co. Operating Unit," by adopting a constitution. This constitution contains a "Preamble" setting forth the general purposes of the organization and provides for the election by secret ballot of a president, vice-president, secretary, treasurer and members of a board of trustees. The elected members of this board are chosen on what is known as the proportional representation principle, which insures minority representation at all times. The management of the organization is vested in this board of trustees, of which the officers of the Unit are ex-officio members.

The constitution further provides for the appointment from among the members of the Operating Unit of certain standing committees, such as: Committee on Wage Scale and Conditions of Work, Committee on Employment and Discharge, Committee on Training and Production Development, etc. It also provides for the adoption by the board of trustees of by-laws and other regulations prescribing the obligations of membership in the Unit. After the organization has been completed, the next step is the drawing and execution of a contract between the Operating Unit and the X. Y. Co. which embodies the terms and conditions upon which the two parties to the contract shall co-operate in production. These terms cover the questions of wage scale, hours and conditions of work, classification of workers, etc., and establish a method of arbitrating differences that may arise between the parties to the contract as to the rights and obligations of each thereunder. This contract is made for a term of years and may, of course, be changed or amended at any time with the consent of both parties thereto. In this, generally speaking, it follows the lines of co-partnership agreements between individuals.

Bound by Contract

While an individual member of the Unit (just as an individual stockholder of the corporation) is free at any time to sever his connection with the organization, at the same time he is bound by the terms of the contract so long as he retains his membership. The Unit, under the provisions of its constitution, has power to expel a member for cause after a hearing; such expulsion results in a forfeiture of employment and of all rights to the benefits of the organization.

The contract protects both employer and employed, by providing that in all cases of discharge from employment the employe shall have the right to appeal to the Committee on Employment and Discharge of the Unit. If after hearing such appeal the committee refuses to sustain the employer, the latter has a right to submit the question to three outside arbitrators, one of whom is selected by the Unit, one by the X. Y. Co. and the third by the other two. The majority decision of these arbitrators is final and binding on both parties to the contract. The purpose of this provision is to prevent the arbitrary discharge of an employe, so frequently the cause of friction and strikes.

Includes Profit Sharing

A scheme of profit sharing by the Unit as a whole is provided for, under which the individual member receives his share in proportion to his contribution to the combined productive power of the Unit.

It would take up too much space for me to give the full details of the scheme of profit sharing. The basic principle is the allotment of a fixed compensation to the capital invested in the business and a provision for a contingency reserve before there is any division of profits between the company and the Unit. This particular scheme of profit sharing, while practicable for the manufacturing concern in question, might not prove so if applied to another and different kind of business.

That some form of compensation to workers in addition to fixed wages is essential to increased industrial production, seems to be the general consensus of opinion. In other words, it is recognized to-day by industrial engineers and experts in production development, that it is an economic error to base compensation solely on the time a worker gives to his job, and to ignore the quality and quantity of his production.

The objection usually raised by organized labor to the latter basis for compensation, is that it benefits the few at the expense of the many; cuts down employment and thereby tends to produce unemployment. If there is any merit in this objection, it is more than offset by the fact that a cutting down of industrial production is the inevitable result of compensation based on time alone. This affects adversely every member of the community, including the worker.

No Danger of Unemployment

While in the past we may have suffered at times from overproduction, there is no danger of such a condition arising to-day, nor for many days to come. Such being the case, a serious condition of unemployment could not exist under a proper system of employment.

In adapting the Operating Unit to a particular industry, the conditions and circumstances prevailing in such industry must govern the details of the scheme of compensation embodied in the contract between the Unit and the employer. The main point is to establish a permanent and defined basis for any scheme which shall be agreed upon, in order that both parties to the contract shall have the security that a contract gives; I hold that in the absence of such a contractual relation, any scheme of co-operation between employed and employed rests on unstable foundations and can not produce permanently satisfactory results.

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Research in the Textile Industry

(*Continued from page* 210)

much the same with the responsible head of the business as with the superintendent of the plant, a department head or any good foreman. Each tends to magnify the importance of his own work in relation to the whole and to feel that his department is largely responsible for the success of the company. Each handles his problems in production, costs, buying or control of operations, and his understanding of the importance of the various phases of his work is an important factor in the quality and quantity of output, but each one lacks to a certain extent (and often

RESEARCH LABORATORY OF GENERAL ELECTRIC COMPANY

only because he has not stopped to think about it) the realization that every other responsible head has just as many and as difficult troubles as his own.

The boss carder can understand the difficulties of the spinner, but often has no conception at all of the importance of the cost department; or the purchasing agent with his eye mainly on economy can save a few dollars by buying an article at a distance and then lose a great deal more by failure to get the goods delivered in time to maintain production. So it goes up through the superintendent, who sees mainly the production of the plant as a whole, and finally the agent or manager who has still broader problems.

The last is quite frequently far removed from any technical details. He knows from experience that the plant has to have a master mechanic to keep things going. This is a factor in profits. On the other hand, the plant has never had a research laboratory, so the latter has not to the average agent and treasurer any obvious effect on profits and naturally he does not see any object in putting money into it. He will have to be shown and this will be difficult until someone has tried and succeeded. The manager or owner as a rule will want to see some sort of result before he starts in, overlooking the fact that such a result can only *follow* a beginning.

Suggestions on Organization

There are different ways of organizing research, but in general it can be conducted along rather familiar business lines. It only requires problems, plant and personnel. We have plenty of the first already, and perhaps the smaller of them are best handled by individual mill laboratories. Expensive involved fundamental investigations would be better treated by an organization of mill interests and, where justified, the results kept for the use of those participating. In some cases it will, no doubt, be advisable to retain specialists who already have experience and equipment along the required lines. These are details that should be considered by research committees of the different associations of textile manufacturers and can be settled by careful analysis of the available facilities and from the experiences of similar organizations in other lines.

The war seems to have inaugurated an age of research all through the world. Its results in the rapid development of military and naval appliances are too well known to require discussion. Governments, technical and scientific societies, and industries everywhere are now organizing to continue this type of work, but having seen its value are by no means confining their attention to war subjects. Already there are British textile research associations and something of the sort in Germany. Research is bound to be an element in future success, so why not heed the signs of the times and prepare to at least get into one of the leading positions in the race?

Research Department of a Modern Mill

(*Continued from page* 213)

search Company to confine its initial efforts to study of what might be termed strictly industrial problems connected with cotton manufacture. Later, scientific research in connection with cotton fiber, and the conditions which influence its quality, length, etc., may be undertaken, although this is not decided.

The equipment of the laboratory consists of a full set of instruments for testing both fabrics and yarn, single thread and in hanks, as well as inspection facilities for examining cloth. An Emerson electric conditioning machine provides uniform hygrometric conditions under which to conduct experiments. The equipment is listed as follows: One vertical Scott yarn tester for breaking strength of yarns in skeins or hanks; one horizontal tester made by Cook & Co. of Manchester, England, for testing single threads of yarn; one Scott horizontal fabric tester calibrated for pulling fabrics up to 800 pounds per inch; one Scott light fabric tester, vertical type; one Toledo scale for weighing laps from pickers; one hank measuring reel; one twist counter.

The inspection table is of rugged wooden construction, and when extended covers about 9 by 12 feet. Two ends may be let down, however, to reduce this to about 9 by 9 feet. This is painted jet black to facilitate inspection of cloth.

It is an interesting fact in connection with the extraordinary thoroughness with which these associated interests have approached this problem, that the Cotton Research Company has a membership in the American Society for Testing Materials, and information will be exchanged with them on textile and related subjects.

From any angle of vision, such a development toward scientific handling of manufacturing problems brings a significant light upon the intensive character which modern industry is assuming in the textile field. Clearly the line of demarcation defining the really scientific character of industrial development, as we see it to-day, may be drawn through the symbols of the present year. There is food for thought as to the economic results of the application of these new and intensive methods, and their bearing on the social and industrial problems of this troubled period.

National Research Council—Its Scope and Plans

(*Continued from page* 214)

for research be decided upon to the best advantage by such a group, but that many new methods of attack may be devised.

Has Foreign and State Connections

The Division of Foreign Relations includes representatives of the Department of State, the National Academy of Sciences, the American Association for the Advancement of Science, and the American Philosophical Society, in addition to prominent individuals who serve as members at large. It is the work of this division to keep in touch with research abroad, particularly upon questions of fundamental science, many of which are international in their scope and require close cooperation between investigators in the various countries if the most that is possible is to be accomplished. Other divisions frequently have occasion to work through the Division of Foreign Relations, and as an example of the possibilities, the international work on epidemics may be cited. Obviously if it becomes established that certain areas are the starting points of epidemics, the various members of the International Research Council, of which the National Research Council is the American unit, can direct its efforts towards putting down such an epidemic at its origin and perhaps eventually eradicate the cause.

The Division of States Relations undertakes the study of the relationships of the various agencies within a State which are concerned either with the development or the application of scientific knowledge. By working through suitable State organizations this Division strives to obtain the same close cooperation between scientific agencies within a State upon State problems that the Government Division secures between the Federal departments.

The Division of Education Relations bases its work upon the principle that the fundamental factor in the advancement of learning in civilization, insofar as this is dependent upon education, is the ability to conduct research progressively and that inasmuch as those who conduct such research must come from our colleges and universities, one of our first duties is to take such steps as may be necessary to stimulate research in our educational institutions. This of course is a very broad problem, involving as it does the creating of opportunities favorable to the stimulation and activity of scholars and those who are to become scholars. A fund granted by the General Education Board for the purpose has made it possible to undertake a survey of research conditions as they now exist and this work has now passed the first stage, which involved an inquiry by letter. This is being followed up by a series of personal visits from which it is clear that much good will come. Already several groups feel that work in their institutions has been stimulated by these visits and the work has as yet just begun.

Its Industrial Links

The Division of Research Extension devotes its efforts particularly to the industries and endeavors to cultivate suitable points of contact for the work of the other divisions of the Council. This Division endeavors to survey the needs of special industries and determine those in which there is an opportunity for cooperative research on fundamentals, such research to be undertaken in existing laboratories insofar as their facilities may prove adequate. The Division acts as a service division for the other Council groups, assists in organizing industrial research, and endeavors to bring to the manufacturers of the country an appreciation of what applied science can do for them and the tremendous risk involved in not taking advantage of all the science now at our command as well as their duty to support fundamental work without which there can be no science to apply.

One of the greatest appeals which the Council can make to industries is through its Division of Research Information Service. This Division is preparing to act as a clearing-house and informational bureau for science and industry. It has set up its machinery to supply material as to the status of knowledge on specific problems, methods, processes, and equipment, current research, source and reference books, and facts with respect to research personnel in various fields of scientific and industrial research. This is a very large undertaking, but will greatly encourage cooperation among investigators, lessen duplication, and serve to put the industries in touch with current work. It will also serve to bring into closer touch those interested in similar fields or working along parallel lines, many of whom might work to a considerable disadvantage because of lack of information as to the activities of others. In this connection we can cite the calendar of forest research investigations which has been compiled by the Forestry Committee of the Division of Biology and Agriculture and which is being brought out by the National Research Council. This calendar will indicate the problems being studied in the various parts of the North American Continent, the progress that has been made, the plans for the future, and those to whom the work is assigned.

Brinton Model "C"

Hosiery Knitter

Five Finger Yarn Changer, Including High Splice and Double Sole.

Positive Clamping Device Controlling Yarn at the Needles.

Rocking Sinkers Making Best Fabric.

Revolving Needle Cylinder Quickly and Easily Removed.

Non-Friction Needles under Perfect Control.

Easy Angle Pickers. Minimum Needle Breakage.

Simple and Effective Loosening Device for Double Sole.

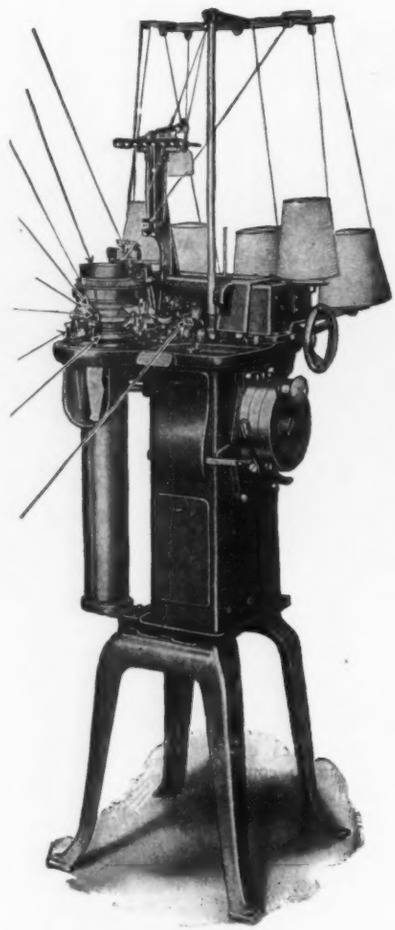
Easy Access Cam Ring. Quick and Accurate Adjustment of Cams.

Accurate, Convenient and Wide Range Adjustment of Stitch.

Needle Stop Motion Which Stops Machine Instantly if Latch or Butt Breaks.

Perfect Plating in Leg, Foot and Double Sole.

Patents Pending at Home and Abroad.



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ACTION OF NEEDLES AND YARN CHANGER EASILY VISIBLE FROM FRONT OF MACHINE.

SCREW ADJUSTMENTS THROUGHOUT.

SIMPLE AND EASY TRANSFER.

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FAST SPEED IN BOTH CIRCULAR AND RECIPROCATING MOTION.

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WILDT & CO., LTD.	LOS FABRICANTES UNIDOS	HARLEY-KAY, LTD.	GASTON, WILLIAMS & WIGMORE, INC.	GASTON, WILLIAMS & WIGMORE, INC.
Leicester, England	Belgrano 964	Georgetown, Ontario	Tokyo, Japan	4 The Bund
	Buenos Aires, Arg. Rep.			Shanghai, China

This has not been done heretofore and it is expected that the work will be of the greatest benefit to the lumber and forest interests.

Activities in Specialized Science and Technology

The above Divisions may be considered those on general relations and, in addition, there are seven which devote their efforts to the more specialized fields of science and technology. The Division activities are sub-divided among committees chosen from among the recognized leaders in their respective specialties.

The Division of Physical Sciences has been active in such matters as the formation of the International Geophysical Union, International Astronomical Union and the International Mathematical Union, the American branches of which have been organized through committees of this division. At the present time fifteen committees are devoting attention to conditions in various fields of physical science, such as high vacua, acoustics, magnetism, high and low temperatures, aeronautics, and spectroscopy. In cooperation with the Division of Chemistry and Chemical Technology this division is also active on the project of publishing in English tables of critical physical and chemical data. The lack of such complete tables has been a handicap to industry as well as to pure science, and such tables as have been available are incomplete, inaccurate and in German only. The National Research Fellowships, with which this division is directly concerned, will be mentioned later.

The Division of Engineering has been organized with the cooperation of the great engineering societies of the country and Engineering Foundation. Twenty special committees are carrying on the work of the division, and among the many important problems, may be especially cited that of fatigue phenomena of metals now under way at the University of Illinois. Much of our recent progress in welding research has been due to the activities of one of the committees which has led to the formation of the American Welding Institute.

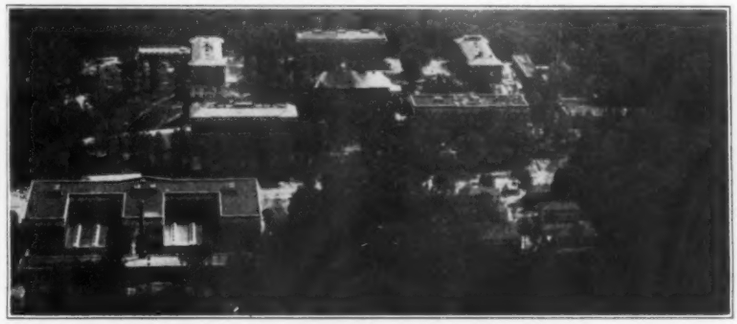
The National Research Fellowships

The Division of Chemistry and Chemical Technology has been organized with the assistance of the American Chemical Society, the American Electrochemical Society, the American Institute of Chemical Engineers, and the American Ceramic Society. The division has laid stress upon bringing together the men in different fields of chemistry, securing cooperative research upon fundamental problems, and compiling lists of special research problems which can be suggested to students and others engaged in research. Among the committees may be mentioned that on Ceramics and another on Explosives Investigations. The division is, of course, called upon to cooperate with nearly all of the others, and with the Division of Physical Sciences is most interested in the National Research Fellowships.

These Fellowships have been made possible by a fund of $500,000 set aside by the Rockefeller Foundation, to be employed during the next five years for the stimulation and promotion of fundamental research in chemistry and physics. The object is to not only add to our store of knowledge, but to confirm young men in fundamental research beginning at the time when they are best fitted to produce the greatest amount of careful work, that is, just after taking their doctorate. These fellowships are unique in that the fellow who is appointed on his qualifications may choose the problem for his study as well as the place where his work is to be conducted. Such unrestricted fellowships are unique and are believed to offer the best opportunity for the most valuable work. Thus far the National Research Fellowship Board has not appointed the full number of fellows, but expects to have a great number of applications for the next academic year.

The Geological and Medical Divisions

The Division of Geology and Geography has been surveying the entire field for the purpose of ascertaining the gaps in our information, determining the work which for some reason or other has been discontinued by an investigator and decide upon its being taken up again, and providing a clearing-house for information and bringing together men often widely separated geographically.



BIRD'S EYE VIEW OF RESEARCH PLANT OF THE U. S. BUREAU OF STANDARDS, WASHINGTON, D. C., SHOWING IN THE LEFT FOREGROUND INDUSTRIAL BUILDING HOUSING TEXTILE MILL LABORATORIES

Geology and geography have been pretty well organized by the various state and Federal agencies, but it has been shown that the work of existing organizations can be supported to advantage by such a division.

The Division of Medical Sciences, one of the most active during the war, continues to find many problems for its consideration. The medical problems in industry, work on intestinal parasites, and a number of cooperative investigations to be undertaken with the help of chemists, physicists and others, are under consideration. There is an undoubted opportunity for constructive work in international indexing, abstracting, and critical reviews of scientific literature, while the possibility of establishing a central bureau of information on technical methods applicable to the medical sciences is very attractive.

Plant and Food Problems

Another division with a tremendous field is that of Biology and Agriculture. We are all interested in questions of food and nutrition and the determination of factors in the physiological salt requirements of plants, which has a direct bearing upon food supply. Notwithstanding the great amount of work which has been done on plant pathology, more still remains to be undertaken, including many long-time researches on the causes of diseases which greatly interfere with production and which contribute to spoilage and decay during the transportation and storage of food. These are but a few instances of the many matters under committee study, and the division has also appointed an Advisory Committee for the American Institute of Baking, this offering an unusual opportunity to demonstrate what cooperative research can accomplish.

Anthropology and Psychology is the field of the last division. Industry is just beginning to appreciate what psychology can do in allocating employes with reference to the work which they are best fitted to undertake. There are a few instances where industries are uniting on just such problems, and the system devised for rating soldiers according to mental alertness and degree of intelligence has made it possible to make material advances in this sort of work. Studies are now being extended to school children, a plan having been devised whereby large groups can be examined at one time, the hope being that such a scientific basis for grading may serve to save much otherwise lost effort and enable special instruction to be undertaken in time.

Its Direct Aid in Textile Research

This, then, is the organization which is prepared to assist the textile industries. It brings to them well organized groups functioning together and representing the various sciences in the industries. Further, in order that the industries may make the most of the opportunity, there is provided a division to assist in the organization of the industry on a basis that will assure the greatest good for the greatest number, with a cost so apportioned as to constitute no burden. Steps are already being taken in this direction through a committee authorized at the World Cotton Conference and sanctioned by the National Council of American Cotton Manufacturers, to consider ways and means for the constitution of suitable bodies to undertake specific researches. The Council maintains no laboratories nor does it have funds for the establishment of such laboratories. It is in a position, however, to assist industry to establish such facilities for itself and then to advise as to the work to be undertaken.

Practical Examples of Research Work

An instance of how this plan may work in practice is afforded by the laboratory of the National Canners' Association. This laboratory was established some time ago by the industry itself, and has succeeded in solving many of its problems and in elevating the industry as a whole. Another conspicuous example is that of the American Institute of Baking, recently formed by the bakers for the purpose of studying the fundamentals underlying their industry, becoming a center for the education of those engaged in or about to engage in the baking industry, and later to include a service laboratory to assist the members with their production problems. Owing to the large number of those engaged in this industry, many of them conducting comparatively small establishments, this affords an excellent example of what can be done through cooperation, without which only the largest organizations could avail themselves of the services of science.

Briefly stated, the National Research Council offers industry the services of well organized divisions of science and technology and the possibility of using an extensive research information service. It also offers facilities for the organization of the industry as a whole or in special groups, whereby resources can be combined for such scientific undertakings as seem advisable in each special case. On its part the industry is asked to cooperate whole-heartedly, for it is vitally concerned with the increase of knowledge, in order that products and processes may be improved, the national defense strengthened, and public welfare generally extended.

Foreign Markets Found by American Buyers

(*Continued from page* 219)

casion. Household linens for this country evidently came chiefly from Ireland, Scotland and Germany. The French linen industry is said to be still occupied with reconstruction and reorganization work, and it is thought it will be fully a year before the French mills will be able to deliver any quantity of goods, and these are already distributed to regular customers.

The majority of returned buyers are agreed on one point, that there has already been a great deal of business done between the European Allies, and that sentiment seems to favor them rather than buyers from this country. Prices on all kinds of textiles are high, and a few travellers intimate that American buyers are specially favored in this direction. Others state that production costs are much higher, particularly in France.

Little New Abroad

Cotton goods buyers are generally of the opinion that there is nothing new either in France or England. It must be remembered in this connection that they had already seen and made their selections of cotton goods for 1920 before they went abroad, so it was hardly to be expected that they would find anything specially new. One man said that unless he found something vitally new in the 1921 lines, which will be shown in June, he would buy practically no foreign goods for next year. "We can get along very well without imported cottons, unless something unusual makes its appearance. There has been a great development in the manufacture of fine cotton goods in this country in the last few years, and I think you will find that they are fabrics which most buyers can distribute quickly."

Mention of a much-talked-about French line was generally received without comment, but with a knowing smile. However, a wholesale importer who used to handle the goods remarked, "A line on which the buyer can always lose money."

Luxury Fabrics Imported

"Importations for many years to come," said an importer whose business was wiped out by the war, "will be largely on luxury fabrics. Whether silk, cotton or woolen they will be fabrics which for one reason or another the manufacturers of this country do not want to make. For example, the American manufacturer now makes the quality of taffeta most in demand in this country so superior to any foreign line

PAXTON, PRICE & O'NEILL

FULL AUTOMATIC FIVE FINGER

Yarn Changers and Platers

Including High Splice and Double Sole

Style of Work Changed Quickly by Simple Adjustments

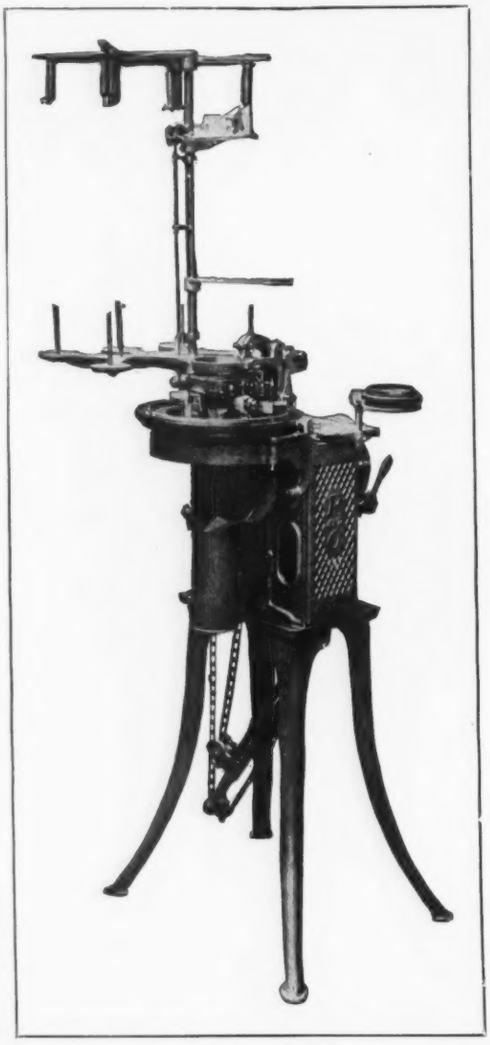
¶ This is a Paxton & O'Neill feature which should appeal to every knitter, and explains why these machines are generally the last to be stopped in dull times.

¶ The drum that controls the changes is concentric with the cylinder, and every part easy of access for adjustment.

¶ Rocking Sinker—A distinctive feature of our machine, which makes the best fabric.

¶ An accurate and easily adjusted control of stitch at all points.

EASY TRANSFER



Revolving Needle Cylinders Quickly and Easily Fastened or Removed

¶ With full control of splicing finger, splicer can be put in half way or all the way around, at any point of the stocking.

¶ In plated work, with two strand or heavier silk, makes perfect plating in high splice and double sole, as well as in the body of the stocking.

¶ Automatic loosening of stitch, in double sole, accommodating any weight of yarn and without loosening the fabric on the top of the stocking.

FOR LADIES' or HALF HOSE

¶ Makes Ladies' Hose with Garter Top. No Ravel; Silk, Plated or Mercerized Leg. High Splice, Double Sole, with advanced Toe, Linen or Mercerized Heel and Toe.

For Further Particulars Address

Third and Green Streets **Philadelphia, Pa.**

of like quality that it would not pay to import such goods. However, there is a small place for finest quality chiffon taffeta. Due to the present demand for georgettes and other crepe weaves, and the high prices which prevail as well as shortage of supply I know men who have thought it advisable to import certain quantities. These will be available in the near future, but I do not consider that they will be a permanent feature of the importing business."

French silk manufacturers are said to be well sold up for months ahead, practically to the end of the year, and have for some time been taking orders only at value. Lyons is said to be working at about seventy per cent of capacity, while Italy is working at about sixty.

It is probable that a greater amount of both English and French woolens and worsteds will make their appearance in this country in time for delivery for the next heavy-weight season. While they may measure up in money value to the 1913-14 importations there will not be anything like the amount of yardage.

Future Foreign Trade in Textiles

(*Continued from page* 220)

cised by the average packer and shipper for American manufacturers. The foreign manufacturer and exporter endeavor to make their package as good as their product, thereby assuring to customers the safe arrival of the goods in seasonable time and in marketable condition. In the past, the American manufacturer paid very little attention to this important factor in merchandising his goods abroad. His efforts have been directed toward reducing his packing costs, and this is true not only of manufactures for export, but also of manufactures for domestic consumption. Inadequate packing is dear at any price and importers in foreign countries would rather pay for special packing than receive damaged goods. Every exporter of textiles should aim to follow any and all instructions given by the foreign purchaser, or if he does not receive instructions, should carefully consider every condition affecting the shipment and provide for it in packing the goods.

Among the factors to be considered in packing goods for export, the method of transportation is probably the most important. If the shipment is direct from factory to ultimate destination, the problem is comparatively simple. Shipments to Canada by an all-rail route require only the proper packing employed for domestic orders and some shipments reach Mexico in the same manner. If, however, the route is a combination of rail and water provision must be made for extra handling at the docks on both ends of the trip. Trans-shipment always means damage to goods not properly packed, and if there are several trans-shipments, only the best packing will withstand the rough handling which is inevitable. Unless the export manager knows the route his goods will travel, he cannot provide intelligently against damage.

The packing of merchandise destined for points not reached by the ordinary means of transportation offers difficulties not encountered in the usual shipment. American exporters should know how to pack for transportation by cart, mule, burro or man carrier. Moreover, they should know when such packing is necessary and should not depend upon specific instructions from the importer, although such special instructions as given by the foreign purchaser should be followed. The loads the various pack animals can carry are approximately as follows: Mule 200 to 250 pounds, burro 150 to 200 pounds. Packages for transportation by these animals should be one-half the foregoing weights, as one package is carried on each side. Thus a mule can carry 250 pounds if divided into two packages, but if a package weighs over 150 pounds the mule can carry only one, and as this rests on his backbone, he cannot carry much above his own weight. The weight that a man can carry varies from 100 pounds to 150 pounds. German and English exporters have paid special attention in the past in attempting to meet the requirements of their customers. German catalogs contain illustrations of the different methods of packing and in addition give the metric weights of each package, whether prepared for rail, water, mule or man transportation.

Another factor to be considered is the climate, both of the country of destination and the route of transportation. Goods which are destined for countries of temperate climate, but which must pass through the tropics en route, must be protected against moisture. This fact again emphasizes the necessity for the exporter's knowing the shipping routes and modifying his packing to meet conditions. More important, however, is a careful study of the climate of the country of destination. In Costa Rica the rainy season lasts for five or six months, during which time it rains hard and frequently. Merchandise shipped to this country for transportation during this season should be fully protected by waterproof coverings. This is also true of many other tropical countries. In many foreign ports storage facilities under cover are unknown, and merchandise is left on the pier exposed to the weather.

In packing goods for export the shipper must consider not only the adequacy of the packing to protect the merchandise in transit, but also its effect on the amount of duty that will be imposed upon the arrival at the place of destination. In the case of an article subject to a high rate of duty on gross weight, the weight of the packing may prove a very important factor in determining the cost of the merchandise to the importer, and in some cases the duty on the packing may exceed that of the contents. It is therefore of importance that the American exporter become familiar with the customs duties of the country of destination and take this factor into consideration when preparing shipments for export. English and German exporters when shipping piece goods wrap the cloth about cardboard, as this is included in the net weight. The amount of duty is therefore less than when wood boards are used. American exporters of textiles are doubtless familiar with the export requirements of packing, and the foregoing comments are made to attract the attention of new exporters and to emphasize to those already exporting the importance of this subject.

Good Representation Necessary

The success or failure of the exporter depends to a very large extent upon his ability to obtain satisfactory and permanent representation by a foreign agency. The exporter of textiles desiring to place his agency in the hands of a foreign house, must be positive that the company to which he intrusts

SUPERCONES

IN THE SUPERCONE we have successfully modeled a supply for knitting machines which not only contains more material than any style of package previously produced, but also, by reason of its progressive build, insures a uniform delivery of material heretofore unequaled by either cone or bottle bobbin. The SUPERCONE is EIGHT INCHES long, with a possible maximum diameter of TEN INCHES. The net weight of a full-sized package ranges from FOUR to SIX pounds, depending upon the material wound. A cone of this size presents the greatest advantages for coarse counts, including sweater yarn.

Descriptive pamphlet on request of the

NEW No. 80 CONE WINDER

SHOP LEESONA MARK

UNIVERSAL WINDING COMPANY, BOSTON

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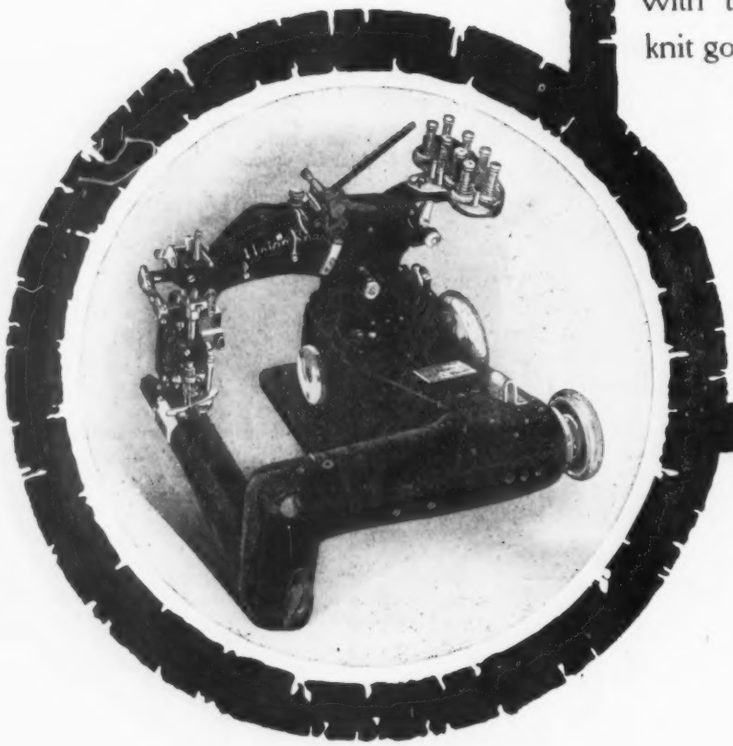
Power Sewing Machines

SPEED
ACCURACY
DURABILITY

That's what you get on the TANDEM INTERLOCK.

Its low cost of maintenance, combined with the FLAT, ORNAMENTAL SEAM that is not affected by the laundering of the garment, accounts for its popularity with the most modern of knit goods manufacturers.

May we send literature?



UNION SPECIAL MACHINE Co
416 N. Franklin St.
CHICAGO

his business is well represented in each of the mercantile districts of the country. To secure a satisfactory representation, it is necessary to grant the agency to a house that has commercial travelers or sub-agents who cover the entire country. In case it is impossible to obtain a house of this type, separate agencies should be granted for each commercial district. The characteristics of each country must be carefully analyzed and the commercial centers and surrounding territory studied in order to determine the selling policy to be followed. The methods of transportation and traveling time must be taken into consideration and the ability of the prospective agent to cover the territory is another important factor. In Venezuela it is desirable to appoint two or three agents, one in each commercial district, in order to obtain adequate representation on account of the lack of proper transportation facilities, while in other South American countries, such as Uruguay, one agency is all that is necessary.

In the selection of a foreign agency great care must be taken to prevent giving a contract to a company representing competitive lines. This is especially necessary when the product is textiles; many American exporters have found to their loss that some foreign houses are willing to accept an exclusive contract for a number of years for specified territory while representing European textile manufactures. In accepting the contract the agent prevents competition from a new line and furthermore makes no attempt to merchandise the products of the American manufacturer, who, in the meanwhile, is wondering why his products do not meet the requirements of foreign markets.

To secure proper representation it is imperative that the manufacturer should send a representative to the foreign countries under consideration to study the conditions of the markets and to endeavor to select the foreign agency. The information necessary for a constructive export sales policy can only be obtained by a personal investigation and in future years the returns will fully justify the initial expense.

In the preparation of descriptive literature for foreign markets care should be taken to analyze the tastes and habits of the foreign buyer. It is essential to have the point of view of the foreign importer when outlining copy for foreign publications. Sample books must be larger in size, or about 10 x 15, and all measurements in the bulletins and sample books should be expressed in the metric system. The idea of continually converting English dimensions into the metric measurements does not appeal to the average foreign buyer, who in many cases is nervous and impatient. Swatch books exhibited by English representatives are always large and small ones are looked upon with disfavor.

Register Trade Marks

The registration of trade marks of American manufacturers in foreign countries is extremely important, because the fundamental principle of foreign legislation in many cases is entirely different from that of the United States. In the United States ownership may be proven by usage, whereas in certain countries registration does not require the registrant to prove that he is the originator and user of the trade marks, so that it is possible for unscrupulous persons to register the trade mark of others. It has happened that such persons have seen certain foreign merchandise of a marketable character advertised in foreign trade periodicals and have proceeded to register the trade marks, thus either excluding the manufacturer from selling these brands or requiring him to pay a large sum for the acquirement of his own rights. What happens more frequently, however, is that a foreign manufacturer whose specially designated merchandise has found a large sale in some foreign market becomes dissatisfied with his agent; a dispute arises; agency connections are severed and the foreign manufacturer discovers that the agent has registered the firm's trade mark in his own name and will not give up his rights to the trade mark until the manufacturer has either settled any pending claims, according to the whim of the agent, or has paid him some fabulous sum of money. The person holding the registered trade mark may go so far as to prevent any merchandise entering through the Custom House for sale bearing the trade marks in his possession. Thus years of propaganda work and thousands of dollars spent for advertising by the manufacturer in making his goods known are lost because he did not take the necessary precautions to have his trade mark registered in his own name or in the name of some one having his implicit confidence.

The measure of our ability to retain the foreign business which abnormal conditions have diverted to this country will be the extent to which we can intelligently cultivate the trade of our new acquaintance. If we use the same concentration which we have shown in the prosecution of war to endeavor to develop a permanent foreign trade our efforts will be rewarded with the same degree of success. Such a development must necessarily be based upon correct merchandising methods and the care exercised in meeting the requirements of each individual foreign customer.

SILK UNDERWEAR MILL

One of the most notable developments in the Reading, Pa., district is the new concrete mill being erected for the Vanity Fair Silk Mills, which is the new name for the Schuylkill Silk Mills. To meet the demand for Vanity Fair silk underwear, which has been increasing in striking proportions during the past several years, the Vanity Fair Silk Mills are building a large addition, six stories high, with approximately 8,500 square feet of space to each floor, adding more than 50,000 square feet to the present mill. When it is in operation the Vanity Fair Silk Mills will be among the largest producers of glove silk underwear under one roof in the world.

The management of the Vanity Fair Silk Mills are going to the expense of building the large addition to their mill at this time, rather than waiting for construction costs to decrease, because they feel that the development is needed to adequately take care of their trade. The mill has the maximum window area for daylighting the work. Just as ample provision will be made for artificial light. This is especially important on account of the value of the company's product, spoilage being very expensive.

The new mill is being equipped with the most modern machinery and every element of improved construction, lighting, sanitation and design is taken into consideration to give the Vanity Fair workers full opportunity to turn out a product which conforms completely with the high standards set by the line.

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THREAD CO.

FLORENCE, N. J.

IF YOU WANT

SEWING and SEAMING THREADS

Of any quality or size.

You are sure of getting exactly what you order in size and quality; accurate color matching; wound in any manner or length; mercerized or plain cotton. Prompt delivery guaranteed.

ALL COLORS

SPOOLS, TUBES or CONES

QUALITY—THE BEST
SERVICE—DEPENDABLE
PRICES—MOST REASONABLE

FOR MAKERS OF ALL KINDS OF SILK OR COTTON FABRICS

Soft finish cotton yarns; also glazed or polished yarns for warps or filling, in all sizes and colors, wound on spools or tubes, single or multiple ends.

FLORENCE THREAD CO.

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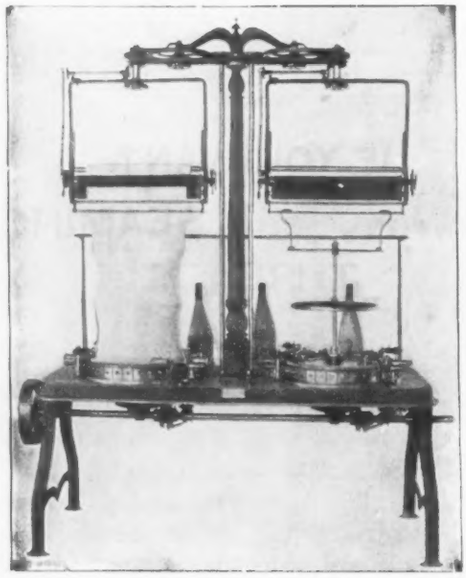
BELL TELEPHONE

ESTABLISHED 1870 INCORPORATED 1890

GET REPEAT ORDERS BY USING

CRANE SPRING AND LATCH NEEDLE KNITTING MACHINERY

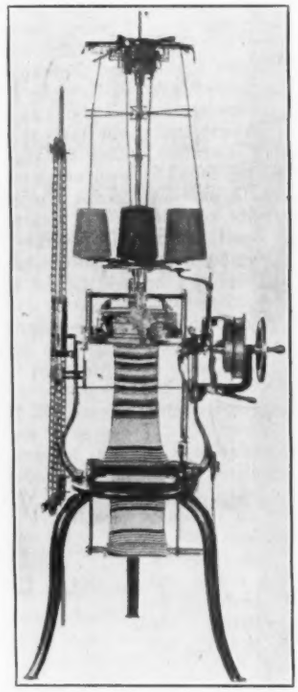


SOME CRANE FEATURES

Patent removable hardened Wing Burr Wheels.

Patent Thread Stop Motion can be fitted to 20 in. and 32 in. frames and are specially adapted for making fine Jersey Cloth and Stockinet.

Our flat machine is adapted for knitting collarettes.



Spring Needle Underwear Machine with Automatic Take-up

This machine is made in sizes from 13″ to 26″ in diameter of any desired gauge, the number of feeds depending on the size of cylinders. Also built in sizes from 2½″ to 32″ in diameter for the production of a great variety of fabrics.

Aside from the feeds for plain fabrics, the stockinet, eiderdown and astrachan feeds are superior to any on the market.

Improved Automatic 3-Colored Plain Striper

Made in sizes from 7⅝″ to 20⅝″ inclusive, of any desired gauge; these measurements being back to back of cylinder needles.

The fabrics from this machine are used for bathing suits, theatricals and athletic goods.

These machines are second to none on the market.

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POWER AND ENGINEERING

Power Generation and Transmission—Mill Construction in Theory and Practice

Utility of the Motor Truck

Varied Hauling Problems Solved by One Truck — Tank Trucks

By *Samuel Sayward*

THE great utility of the motor truck in connection with textile mill operation is shown by the experience of Richard Hey & Son, Inc., manufacturers of blankets, linings, etc., on 24 sets of cards and 94 broad looms at Manayunk, Philadelphia. In adopting motor truck equipment, the company at first believed that two motor trucks would be absolutely essential to do the work laid out. By a little sudy, however, and by the use of a double-action body, a single truck handles the whole day's hauling.

A hand-dump body is the basis of the truck, with removable sides and tail. When the sides and rear are removed, stakes are quickly inserted around the platform and a general utility stake body results.

The first work each day for the truck is the hauling of coal from a nearby yard and from six to ten tons of coal are transported and dumped right at the entrance to the boilers, saving a rehandling of the coal at the plant. Ashes are removed by the same truck and dumped at the outskirts of the company's premises. At about 9.30 a. m., the company is through with the use of the dump body.

Body Changed in Four Minutes

Inside of four minutes the sides of the dump body are removed and the stakes are in position. Bales and bags of raw material are in the stock sheds. Enough of these must be carried to the mill to keep the work in process. There is a narrow driveway through the middle of the stock sheds and the car must work in close quarters. Bales are piled high on the stake body and are hauled the short distance of 150 yards to point of delivery.

Then there is the finished product of the Hey plant to be shipped from the wharves and freight depots of Philadelphia. Out go the finished products by the same car and, instead of returning empty, back comes a load of raw material for the stock sheds.

One particular day, which used to be commonly described a "wild day," when it occurred at any mill, proved to be a matter of small moment, for the truck fitted into the emergency. There was an engine breakdown at the plant. The truck went into Philadelphia and in an hour was back with the necessary part to repair the break. In addition, that day the truck had hauled all of the coal and ashes, had hauled 40 bales (some 30,000 pounds) of material from Wissahickon to the stock sheds, and had made two local hauls besides.

HAULING COAL AND ASHES IN A DUMP BODY; EARLY MORNING JOB OF TRUCK OF RICHARD HEY & SON, INC.

What is done with a motor truck depends entirely upon local conditions. The truck is as useful to a small mill in an outlying section—it might be said to be even more useful—as in the handling of the work at the larger plants. The hauling equipment of every mill is intimately associated with every department of the plant. From the fuel that turns the wheels to the finished product placed aboard cars or vessels for shipment, hauling must be considered. The more quickly and economically the handling is done, the greater are the profits to the mill.

The adaptation of the double-action body by the Hey company is an example of the possibilities which are open to every mill of getting the greatest efficiency out of their motor truck equipment.

Truck for Emergency Work

The United States Worsted Co., at its plant at Lawrence, Mass., which was one of the pioneers in the use of motor trucks, has installed a three-quarter ton reversible speed truck which replaces the last horse-drawn vehicle at the plant and is used in its out-of-town emergency work. In addition, it has also added a four-ton truck.

The company, having no further use for its stable, has this winter torn down that building and is erecting a repair shop at the end of the storehouse, besides enlarging its garage facilities.

A five-ton truck bought by the company in 1914 was overhauled last month for the first time since it was purchased. It is now back in active service and is doing the same work that is required of the newer trucks.

The Arlington Mills, at Lawrence, Mass., have added to their equipment, so that they now have a fleet of 15 trucks hauling raw, process and finished goods to all parts of the state as well as into other New England states. These trucks are of five, three and two-ton capacity.

Mill men who have used trailers are getting together with a view to securing the passage by the Massachusetts Legislature of a more equitable law governing the use and registration fee required of trailers. While some of them use trailers the greater part of the year,

DUMP BODY TRANSFORMED INTO GENERAL UTILITY STAKE BODY IN FOUR MINUTES AND TRUCK IS USED FOR HAULING RAW MATERIALS TO THE MILL

LOADING WITH FINISHED PRODUCT OF RICHARD HEY & SON, INC., PREPARATORY TO DELIVERY TO WHARVES AND FREIGHT DEPOTS

most of them discontinue the trailers when the snow comes, thus using them but a part of each year. At present the high registration fee required for trailers materially increases the cost of operation. A registration fee, based upon trailer mileage or upon some equally equitable basis, will be sought.

The Pacific Mills at Lawrence now have a fleet of 23 trucks at their plant. Their equipment consists of six electric trucks as follows: one 5-ton, two 3-ton and three 2½-ton; and 17 gasoline trucks as follows: nine 5-ton, five 2-ton and three ¾-ton trucks. Electric trucks are used wholly for the short hauls and the batteries are charged at their own power plant.

Cotton Mill Uses Large Trucks

With seventeen mills scattered over a district of more than fifty miles in extent, the B. B. & R. Knight Co. of Providence, R. I., was obliged to find some rapid and dependable agency for the carrying to and fro of the raw and finished products. The company put eight trucks into operation to do the work. Of this equipment six are of 5-ton capacity, one is of 3-ton and one of 2-ton capacity.

The trucks are called upon for various duties, hauling raw cotton from the freight yards and wharves to the mills, carrying coal from tidewater to the boiler rooms, carrying goods in process from one mill to another, and hauling the finished products to distributing centers. On many occasions they have transported machinery from factory to factory. The company's mills are in Manchaug, Hebronville, Dodgeville, Readville, Mass., Centreville, Natick, Phenix, Pontiac, Providence, River Point and White Rock, Cranston, Woonsocket, Arctic and Jackson, R. I., and the fleet of eight trucks serves the entire group.

Hauling Fuel Oil

Made confident through the successes which attended the trials to which motor trucks were subjected during the war, their advent into the newest work in the textile field, the hauling of fuel oil to the mills, comes as a matter of course. Their performance has already made them an indispensable part of the fuel oil burning equipment.

The simplicity with which they are handling fuel oil, the ease with which they are filled and emptied, the certainty with which they deliver their cargoes without extra handling, has had considerable to do with the development of oil burning for power.

The story is going the rounds among the truck dealers of a prominent mill man of Central Massachusetts who was securing estimates on the cost of tank truck installations preparatory to installing oil burners in his mills.

"I must have the tanks lined with steam coils and there must be some method of forcing steam through these coils," he informed the truck salesmen.

The problem was a big one until one of the salesmen asked hom how far he intended to haul his oil supply.

"Only from the sidings except in case of emergency, when they may be on the road six or eight hours. Sometimes the oil may have to remain in the tank trucks until morning. This is zero weather and we must be sure of being able to unload the oil."

Only by actual demonstration were the agents able to show that superintendent that no steam coils were needed; that no artificial heat was needed in handling the oil, and that in weather which dropped to four degrees below zero, the oil was handled as readily as in summer.

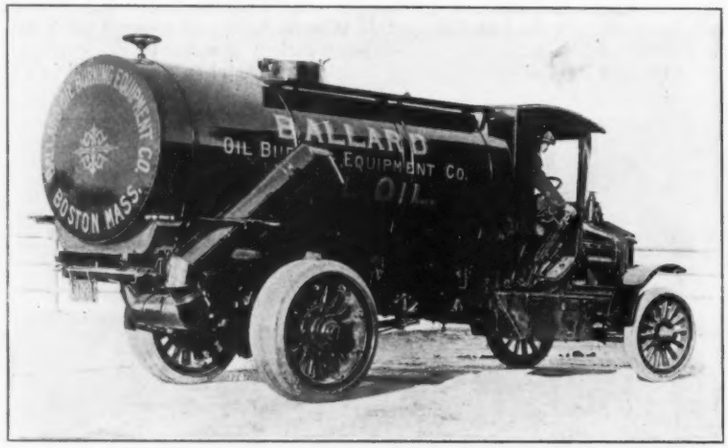
For the demonstration a 1,500 gallon tank truck was used. Fuel oil was loaded into the cold tank when the thermometer registered zero, the oil being taken from the tank car at 90 degrees. The trip of 50 miles took four and a half hours to the point of delivery, and the oil was there unloaded in five minutes. The temperature of the oil had dropped only four degrees while the temperature of the outer air had also dropped four degrees, registering four below zero.

Special Attention to Tank Trucks

Many of the mills are depending entirely upon their motor trucks for their supplies of fuel oil because of the ease with which the supply is handled. Several of the leading truck manufacturers are giving special attention to the tank trucks and the tank bodies. On some of the trucks special loading and unloading features are being provided permitting speed and ease in handling the oil. Instead of requiring chauffeurs and helpers or shovelers, one man does all of the work on an oil truck, loading it without any hard labor on his part, operating the truck to its destination and then unloading it by merely attaching the outlet fixture of the tank truck to the intake valve of the storage tank and opening the valves, the oil flowing out without further effort.

Meantime the development of the use of trucks for hauling raw and finished products to and from the mills goes forward uninterruptedly. Specially constructed trucks for handling coal and ashes are in demand among the truck dealers and many of the mills are discarding the last of their horses, lately used for this work, for these trucks.

Mill men have believed for some time that trucks were essential to long distance hauling in preference to horses. Now they are beginning to realize that the trucks are just as essential to the short hauls. Gradually the horses are being eliminated. Horses never cost more than they do today. Feed never brought higher prices. Stable help is difficult to obtain at any price. All these problems are eliminated by the trucks and the supply of competent chauffeurs is unlimited, while the machinists of any mill are able to make any necessary minor repairs to a motor truck.



5-TON, 1580-GALLON TANK TRUCK WITH SPECIAL MANHOLE TOP AND OUTLET PIPE FOR FUEL OIL

Use of Trailers

Until legislation is adopted of a stable nature, the use of trailers with trucks will vary in the different states in which trailers are operated. Their use is growing constantly and many mills which originally regarded a trailer as a more or less emergency vehicle are now putting them into regular service.

Youlden, Smith & Hopkins, truckmen of Boston, Mass., have doubled their trailer equipment and are using them with success through the winter's snows. In their hauls for the mills at Lowell, Chelmsford, Lawrence and other Massachusetts cities from Boston, although there are many grades to be negotiated, they are proving their merit. Only the steepest of grades prove a stumbling block to the trailers, not so much from the heft of the load, but because they have, when heavily loaded, a tendency to lessen the grip of the driving wheels of the truck on the road bed. In some of the steep grades of Western Massachusetts the use of cables in hauling a trailer over the steepest part of the grade, after the truck has advanced beyond it, has been employed successfully as a saving of both time and labor when compared to the use of a second truck for the trailer load.

To obtain the greatest efficiency out of a motor truck is as interesting a study to mill engineers, and as full of variations, as the operation of mill machinery itself.

Lighting Conditions in the Textile Industry

Data Resulting from a Survey Made by Trained Investigators

By *Albert L. Arenberg**

THE industrial executive of a few years ago gave no particular thought to the artificial lighting installation of his plant. It was considered merely as a necessary part of the plant equipment and as long as it furnished light, no matter how dim or glaring, it excited no further interest.

During the last five years factory executives have perceived that lighting conditions have a very direct effect on both quantity and quality of production, so that illumination, both daylight and artificial, has become a matter of vital importance to the progressive factory owner or manager and must inevitably come within the knowledge of all efficient industrial management.

Probably there is no great industry where lighting is so closely related to production as in textile manufacture and so it is of interest to know actually what the general lighting conditions are at the present time, and what is the general attitude of textile manufacturers on lighting matters. To gain this definite information one of the leading manufacturers of Mazda lamps sent out a corps of trained investigators, who thoroughly combed all the textile manufacturing districts of the United States, calling on a large number of mills, examining lighting conditions and interviewing textile executives. The results of this survey, it is felt, are of as much interest to the textile industry as to electrical equipment and lighting men.

The investigators were not lighting salesmen or men connected with the electrical industry, but were experienced in the conducting of unbiased investigations. Before being sent out, however, they were thoroughly trained to be able to judge lighting conditions. Every effort was made to obtain an accurate, impartial report of textile lighting conditions and of the attitude of textile men on lighting subjects. Textile plants of all kinds, small and large, in fifteen states were called upon so that the results of the survey may reasonably be taken as representative of the entire industry.

The results of the investigation are briefly summarized in the following charts and explanations, giving first the conditions which exist, and second the state of mind of textile men in regard to lighting subjects.

Time of Last Lighting Change

Lighting progress has been so rapid during the past few years that any installation which is five years old is certain to be obsolete and inefficient. During this period lighting apparatus has been especially designed for textile mill lighting which is in every way superior to older types.

The investigation shows that nearly thirty per cent of textile mills have made no change in lighting equipment within five years; in other words these plants have obsolete lighting. Many plants which have made some changes in lighting within five years have installed inefficient lighting equipment; have made poor installations of good equipment, or have not remodeled the lighting in more than a few locations. The summary of

*Illuminating Engineer, Central Electric Co., Chicago.

this information is shown in Chart No. 3.

Observation of Lighting Conditions

The actual condition of lighting in textile plants, as might be expected from the preceding explanation, is far from good. Only 10 per cent of textile mills in the country are really well lighted, although an additional 36 per cent are reasonably well lighted. This leaves slightly more than half of the textile mills of the United States in the poorly lighted class. These judgments are based upon what is generally considered by lighting men as standard for textile mill operations as indicated by the Illuminating Engineering Society Code. These data are compiled from the observations of investigators and not from actual measurements of illumination intensity, distribution, etc. They are therefore not closely accurate and should be taken as merely indicative of the general situation. Chart No. 9 shows in graphical form these lighting conditions.

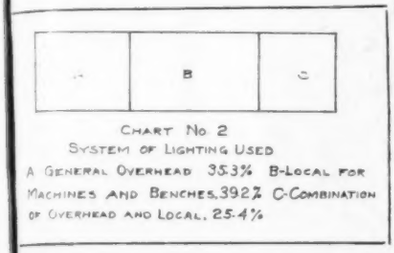


Chart No. 2
System of Lighting Used
A General Overhead 35.3% B-Local for Machines and Benches, 39.2% C-Combination of Overhead and Local, 25.4%

The lighting of offices in textile mills, as shown in Chart No. 7, is found to be almost invariably better than that provided for the manufacturing operations in these plants. The probable explanation is that the office people are either more appreciative of good lighting or are in a better position to obtain it than the mill operatives.

System of Lighting in Use

Chart No. 2, showing the type of lighting installation, needs no further explanation than to say that present lighting tendencies are toward general overhead illumination, eliminating as far as possible the need for localized lighting on looms or other machinery.

Kind of Lighting Units Used

It is evident from Chart No. 1 that the old carbon filament lamp is fast losing ground in the textile industry and that high efficiency Mazda C lamps are gaining in popularity. The tendency represents a rapid betterment in textile lighting.

Mazda C-2, or Mazda daylight lamps are not yet widely used, despite their wide application to textile fields. This is probably due to the fact that they are not yet well known to the entire industry.

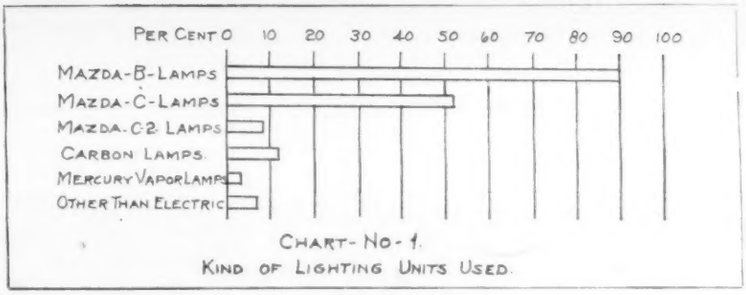


Chart-No-1.
Kind of Lighting Units Used.

Extent to Which Reflectors Are Used

Only one-fourth of textile plants used bare lamps without reflectors, as shown by Chart No. 10. While this is somewhat above the average for other lines of manufacture, the percentage must be very much lower before good lighting conditions can exist generally throughout the textile industry.

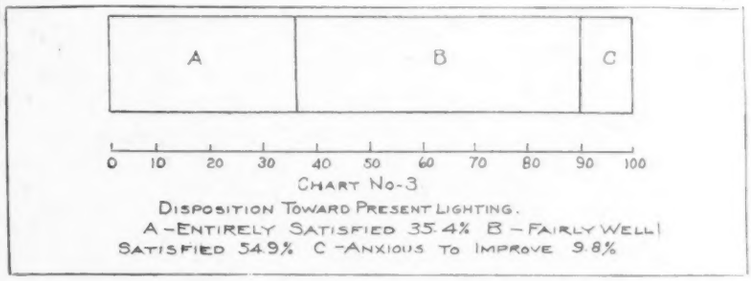


Chart No-3
Disposition Toward Present Lighting.
A-Entirely Satisfied 35.4% B-Fairly Well Satisfied 54.9% C-Anxious to Improve 9.8%

It was evident from the survey that the plant executives initiate practically all lighting changes, improvements or additions. It is conclusive evidence that the decision, at least, in regard to lighting matters is not delegated. The results of the survey as to who initiates changes are as follows, the figures representing the percentage of the total number of plants in which the officer named was responsible for improvements: president, 14.9 per cent; treasurer, 6.4 per cent; general manager, 40.4 per cent; board of directors, 4.3 per cent; superintendent, 27.7 per cent; architect or engineer, 2.1 per cent; chief electrician, 2.1 per cent; other than above 2.1 per cent.

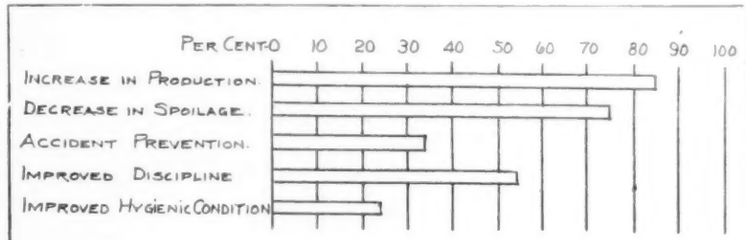

Per Cent 0 10 20 30 40 50 60 70 80 90 100
Increase in Production
Decrease in Spoilage
Accident Prevention
Improved Discipline
Improved Hygienic Condition

Chart No 5.
Appraisal of Advantages From Efficient Lighting.

In the estimation of the investigators 42 per cent of the textile mill executives interviewed were well informed regarding lighting progress and as to what constitutes an up-to-date installation. A slightly greater percentage were vaguely informed, while 12 per cent seemed to be entirely uninformed.

The plant executives are again the men responsible for the purchase of lighting, although the purchasing agent plays a considerable part as shown in the following figures: president, 15.7 per cent; treasurer, 9.7 per cent; general manager, 33.3 per cent; purchasing agent, 15.7 per cent; superintendent, 15.7 per cent; other than above, 15.7 per cent.

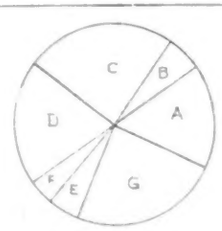


Chart No. 4
Time Since Improvements Were Made
A-Within One Year - - - - 14.3%
B-One Year Ago - - - - 6.1
C-Two Years Ago - - - - 28.6
D-Three Years Ago - - - - 16.3
E-Four Years Ago - - - - 6.1
F-Five Years Ago - - - - 4.1
G-More Than Five Years Ago, 24.5

It is plain from the following figures showing who is responsible for the installation, that the electrical contractor is the main factor as far as the actual planning, supervising and installation of lighting is concerned. Plant superintendent, 9.1 per cent; consulting architect or engineer, 6.8 per cent; chief electrician, 22.8 per cent; outside contractor, 72.8 per cent.

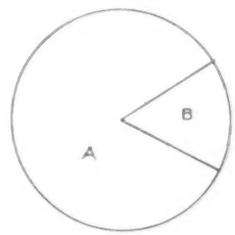


Chart No. 6
Disposition to Buy Lighting or Merely Equipment.
A - - Lighting - - - - 85.5%
B-Lamps and Equipment - - 14.5

As shown from Chart No. 8 adjoining, only 41 per cent. of textile plants buy lamps on an annual contract basis. Probably the very great majority of textile plants buy a sufficient number of lamps per year to entitle them to an annual contract, through which some lit-

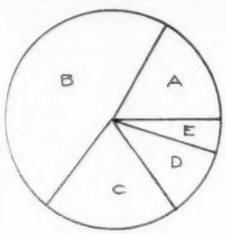


Chart No. 7
Observations of Lighting Conditions in Mill Offices.
A-Excellent - - - - - - - - 18.7%
B-Good - - - - - - - - - - 41.7
C-Fair - - - - - - - - - - 22.9
D-Poor - - - - - - - - - - 12.5
E-Partly Good, Partly Poor - 4.2

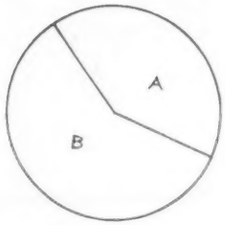


Chart No. 8
How Lamps are Bought
A-On Yearly Contract Basis - 41.3%
B-Without Contract - - - - 58.7

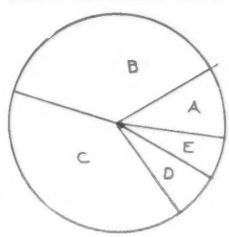


Chart No. 9
Observations of Lighting Conditions
A-Excellent - - - - - - - 10.2%
B-Good - - - - - - - - - 35.9
C-Fair - - - - - - - - - 41.0
D-Poor - - - - - - - - - 7.7
E-Partly Good, Partly Poor - 5.1

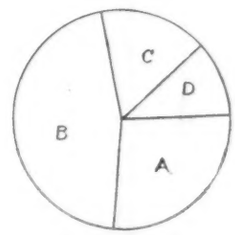
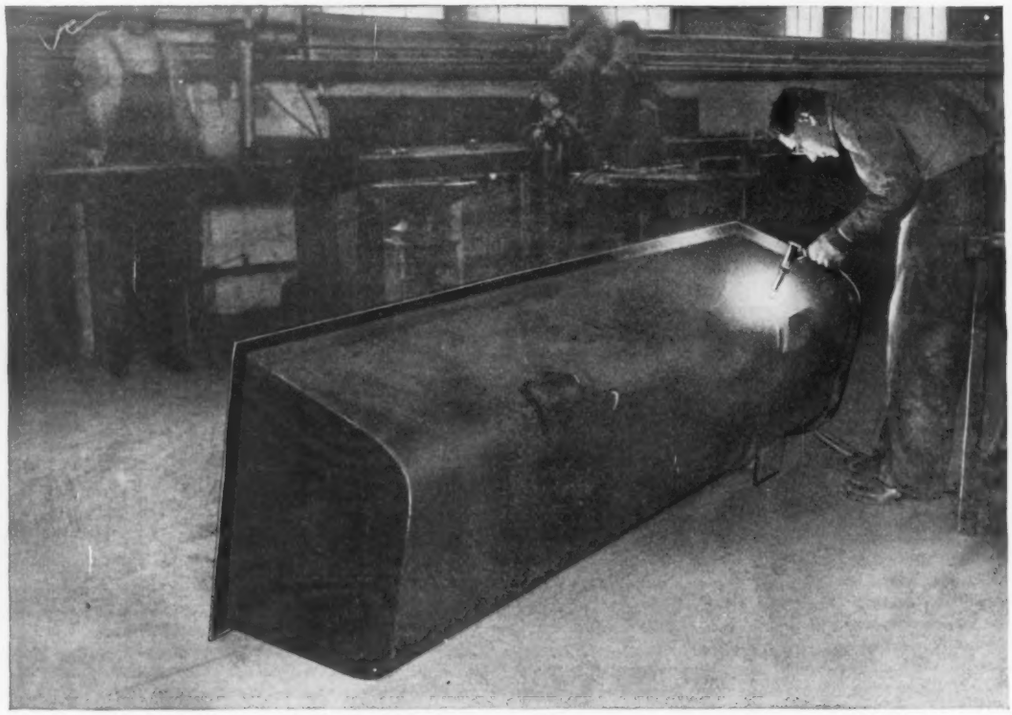


Chart No. 10
Extent to Which Reflectors are Used.
A-Entirely - - 28.9%
B-Largely - - 44.8
C-Partly - - - 18.4
D-None - - - - - 7.9



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tle saving in lamp costs might be effected.

The following points are not related to the actual physical conditions of textile mill lighting, but are reflections of the mental attitude of textile executives on lighting matters. In some cases the opinion is that of the executives; in others it is the investigator's judgment of the executive's attitude.

Appraisal of Advantages of Good Lighting

Chart No. 5 shows the reasons given by executives as to why good lighting is of value. In getting these opinions, the investigator did not enumerate the advantages, but merely guided the interview along these lines. Seventy per cent. of the executives interviewed considered good artificial lighting vitally important; sixteen per cent. considered it moderately important; and fourteen per cent. considered it of little importance. As to whether lighting is considered an expense or an investment, 14.3 per cent. consider it an expense, and 85.7 per cent. consider it an investment.

Comparison of Lighting and Power

A question as to the comparative attention to lighting and to power matters was intended to bring out the attitude of textile men as to whether more or less importance was attached to the purchase and installation of lighting equipment as compared with the purchase and installation of motors, generators and other electrical power equipment. The following figures are indicative of this attitude: More attention to lighting matter, 14.0 per cent; as much, 60.0 per cent; somewhat less, 14.0 per cent; considerably less, 13.0 per cent.

It may be within reason concluded from this survey that textile mill executives are fast coming to see the importance of good lighting as a vital factor in more and better production, and to look upon money spent on better lighting as a worth while investment. Their action in these matters, however, lags considerably behind their convictions. In many cases the mill executive is thoroughly convinced of the advantages of good lighting, but his plant is not well lighted, and he is much surprised to learn that his lighting equipment is not entirely modern.

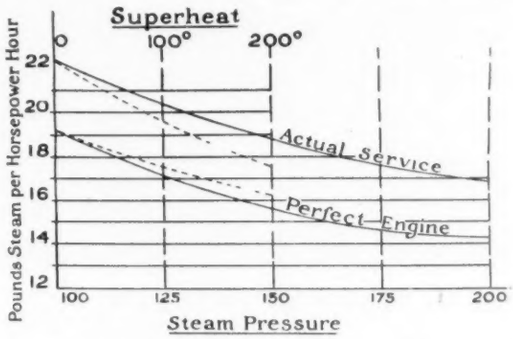
The new viewpoint on lighting which has been adopted by so many executives and which is so radically different from the old idea of holding lighting expense to the barest minimum is certain to raise the general standard of textile mill illumination during the next few years.

Management of the Power Plant

Effecting Economies by the Use of Superheated Steam

By *Robert June, M. E.*

THE possibilities of effecting economies in the power plant through the use of superheated steam are worthy of careful consideration in these days of high fuel and labor costs. In this connection, the fact should be recognized at the outset that the use of superheated steam is not necessarily confined to new plants especially designed for such operation, but that in many cases it can be successfully adapted to old plants without incurring excessive expenditures. In our discussion, it will be well to examine the effects of superheating factors governing advisability of using superheat, temperature to which steam is to be raised and some details of operating practice.



EFFECT OF INCREASING SUPERHEAT (DOTTED LINES) FOR PERFECT ENGINE AND ACTUAL SERVICE

Effects of Superheating

By superheating, we mean the practice of raising the temperature of steam, immediately after its generation in the boiler, to a point considerably above the saturation point, without greatly increasing its pressure. When utilized in the steam engine, superheated steam possesses the following advantages:

1. The more heat supplied per unit of volume of steam to the engine, the more work can be obtained from the engine, and the increase of pressure having a practical limit, this extra heat is to be obtained by superheating the steam. A moderate amount of superheat produces a large increase in volume, the pressure remaining constant and diminishing the weight of steam per stroke for a given amount of work.

Improves the Vacuum

2. The diminished density of the steam employed to do the work lessens the back pressure, or, as commonly expressed, improves the vacuum. This also applies to the air and vapor which are carried with the steam, and further expanded by the increased heat, and are consequently contracted to a much less volume when chilled, by striking the cooling surface of the condenser; thus the air pump has less work to do.

Prevents Condensation

3. The prevention of condensation during expansion without the use of steam jackets is the most important advantage to be attached to the use of superheated steam. Steam jackets are wasteful and inefficient when applying heat to the engine. Inefficient, because the contact is only with the steam immediately adjacent to the walls of the cylinder, with probably little effect being derived by the steam in contact with the piston and in the interior of the cylinder out of reach of the radiation from the walls; wasteful, because of the full effect of heating the exhaust steam after it has done its work in the cylinder during the waning stages of expansion and throughout the exhausting stroke. This is particularly true of engines which have a pause at the end of the stroke, which pause always finds the cylinder full of steam which has completed its work in the cylinder and is ready to be exhausted. Ample evidence of the truth of this statement is found in the high ratio of water condensed in the jackets of direct acting pumping engines to the amount of steam used in the cylinders.

Eliminates Condensed Water

4. Elimination of condensed water in piping leading to engine.

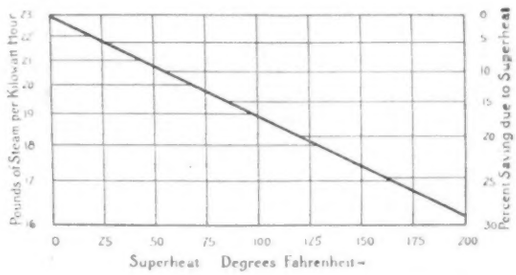
5. Reduction of friction, cutting down loss of pressure in ports and passages, and permitting reduction in size of conducting pipes.

Factors Governing Use

The decision to use or not to use superheated steam in any particular plant will depend upon a thorough study of the plant conditions, taking into account fuel cost, engine performance, capacity of plant, steam line losses, cost to install and maintain superheaters, etc.

Engine Performance

Engine Performance: As a general proposition, the savings to be effected from the use of superheated steam vary inversely with regard to the efficiency of the prime mover when using superheated steam—being greatest with direct-acting pumps, and smallest with steam turbines. A fair estimate of the average saving which may be effected with moderate superheat, that is, say 100 to 125 degrees F., based on continuous operation of existing plants, is for slow-running full-stroke, throttling engines, including direct-acting pumps, 40 per cent; simple engines, non-condensing, with medium piston speed, including compound direct-acting pumps, 20 per cent; for compound condensing Corliss engines, 10 per cent; for triple expansion engines, and turbines, 6 per cent. Of course, higher figures than these have been obtained but these may be taken as a fair average.



SAVING DUE TO SUPERHEAT; TEST OF HIGH SPEED TRIPLE EXPANSION ENGINE; 10 DEGREES SUPERHEAT REDUCES STEAM CONSUMPTION PER KW. HR. FROM 23 POUNDS TO 18.8 POUNDS

Capacity of Plant

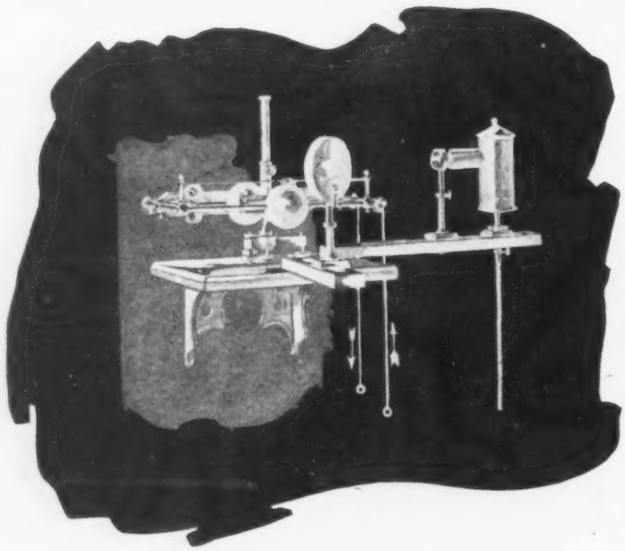
Capacity of Plant: Naturally, the capacity of the plant has an important bearing upon the advisability of using superheated steam, inasmuch as the cost of the installation may be out of proportion to the savings to be effected. If the steam consumption is equivalent to about 250 h.p. continuously, however, it would seem desirable to investigate the possibilities of superheated steam.

If the plant is large, the question should, by all means, be taken under advisement. This is particularly true where there is any apparent lack of boiler capacity.

Another point worth remembering in this connection is that in the case of old boilers, where the insurance companies may require that, owing to their condition, they be operated at lower pressures, under such circumstances, a loss in capacity of the boiler results. This loss may be made up by a change from saturated to superheated steam.

Steam Line Losses

Steam Line Losses: Condensation in long pipe lines is a problem which is faced in many plants. Ninety per cent. of the heat necessary to evaporate water is latent heat, and if condensation takes place before the steam is transformed, this latent heat is liberated and the waste and losses due to condensation may be very large. Under the best conditions, with properly proportioned, well-covered steam pipes, we find a loss of 1/5 to 1/3 of a degree F. of superheat per foot of steam pipe. It seems reasonable to assume that with the ordinary large and indifferently covered steam pipe the loss may reach as much as one degree F. for every foot of pipe; consequently, a pipe 100 feet long would probably lose 100 degrees of superheat, which is equivalent to five per cent. of moisture in the steam, if we assume that the steam is dry before leaving the boiler.



This is the type of instrument used in calculations which solve the weight of the earth.

WHEN Professor C. V. Boys measured the weight of the earth he was not more exact in his calculation with the delicate instruments at his command than are the engineers and the chemists in their everyday tasks of producing Linde Oxygen.

Men of astronomy must know the earth's exact weight. Men who weld must know that their supply of oxygen is, and will always be, of the same unvarying high purity. Linde Oxygen is their best assurance of this.

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Superheat is necessary to raise the temperature of the steam to a point where it may all be transmitted to its destination without continuous loss. As superheated steam does not give up its heat as readily as saturated steam, it can be transmitted with smaller total loss. Superheated steam is, therefore, valuable as a means of eliminating the condensation in steam pipes.

Degree of Superheat

In the United States and Canada total steam temperatures rarely exceed 600 degrees, while in Europe 600 degrees is a common temperature, and temperatures of 850 degrees are often reached. This does not necessarily mean that steam practice in Europe is in advance of steam practice in America and Canada. In Europe they have had a condition of excessively high fuel costs and low labor costs, whereas, we have had the reverse, that is, comparatively cheap fuel and very high costs for labor and materials. This means that, insofar as we are concerned, the greatly increased cost of an installation above a total temperature of 600 degrees F. may so far off-set the possible savings in fuel that the installation will not be economical. As a general proposition, we may state that for at least ninety-five per cent. of the steam plants in the United States and Canada, 100 degrees of superheated steam is about right, and that only in exceptional cases should superheat exceed 125 degrees.

Operating Notes

There are times when, in the ordinary use of a superheater, the circulation of steam will be less than at others. While at such times superheaters may be exposed to the furnace gases at high temperature, such a condition occurs when the load is temporarily arrested or when cutting in the boilers to guard against damage. Under such conditions some superheaters are provided with flooding arrangements by which superheater types are filled with water and this made part of the evaporating surface of the boiler. To do this it is necessary to open and close certain valves on each boiler, an operation which must be reversed when the critical period is over and the superheaters are to resume their normal practice.

Admitting water to the interior of the superheater induces a formation of scale to the tubes. Moreover, a superheater which has been flooded must be drained before being put back into service. This necessitates, on each boiler, a double operation on the part of the attendant which must be carried out with great care and intelligence, because of the disastrous results to the engine which might follow if the water in the superheater were driven into the steam pipes. This danger of flooding is one which has been so well recognized that superheater manufacturers are getting away from it by protecting their superheaters by means of heavier or special construction so that they will not burn during these special periods.

Even superheaters which are flooded should be equipped with a drain so that they may always be blown out. On starting a boiler that has been cold, the drain should be opened and kept open until steam appears. This will blow out the water that may have condensed in the tubes when the boiler cooled.

Another thing that should be carefully watched in all boiler plants is setting of the superheater safety valves. These should always be set to "pop" first. When this is done, if the plant loses its load for any reason, there will always be a flow of steam through the superheater.

Material-Handling in Brooklyn Army Base

Horizontal and Vertical Transportation—Notable Operatorless Elevator Installation

THE U. S. Army Supply Base, Brooklyn, is the largest of the Government's great receiving and distributing bases which have been erected at Brooklyn, Boston, Port Newark, Philadelphia, New Orleans, Norfolk, Charleston, Newport News, as well as in Chicago, St. Louis, Columbus, Ohio; Jefferson, Md.; Pittsburgh, New Cumberland, Pa., and Schenectady.

U. S ARMY SUPPLY BASE, BROOKLYN, N. Y., LARGEST OF THE GOVERNMENT'S GREAT RECEIVING AND DISTRIBUTING BASES

Not only in size do these bases dwarf kindred commercial developments of the past, but in them have been incorporated the practical working out of so many of the latest and best ideas of architects, engineers, warehousemen, freight handlers and material-handling machinery manufacturers, that they demand the closest scrutiny and consideration of those concerned with provisions for meeting commercial developments.

The Brooklyn Army Base contains over four million feet of floor space, and the transfer sheds one and a quarter million feet, or a combined total of 116 acres. Including the transfer sheds for transient use, this affords actual storage space for about 15,000 carloads of goods.

Handling 15,000 carloads, or 300,000 to 400,000 tons of freight, on a 30 day turnover basis, particularly in these times of labor shortage, requires the utmost possible conservation of time and effort. The whole handling system of the Brooklyn plant is calculated to meet those big problems in freight and merchandise handling which begin and end at the ship side or car door and involve loading, unloading, plant movement both horizontally and vertically, and tiering.

Unique Equipment and Methods

The utmost practical utilization is made of various devices for the reduction of manual handling. These are automatic elevators, cranes and derricks, lifting trucks for picking up whole loads with one single operation and shifting to other locations, trailer trucks and both gravity roller and portable power conveyors.

It is an old warehouse maxim to "Keep the goods moving," and here, too, they are kept going between ship side or car door and the storage piles. However, not only keeping them moving but "Keeping the goods on wheels" is a fundamental and distinctive feature of this plant.

The Trackless Train

In this modern development everything is carried on four-wheeled trailer trucks, and here the goods which are carried across country by the trainload are also handled by the truck trains through the plant.

The trailers are moved horizontally by industrial plant tractors and vertically by means of one of the most original and highly efficient elevator installations ever devised. Goods are kept on the original trailers from loading point to destination, and handling is reduced to a minimum. The trailers are usually moved in trains of from 4 to 5 if loaded, and 6 to 8 if light, and one man with a tractor handles the train. This should be contrasted with the string of handlers which would be necessary to move an equal tonnage with the old two-wheeled "baggage" trucks.

The tractors and trailer trucks are, of course, narrow gauge, and the trains are easily handled in the aisles and around the turns. For short trailer movements tractors are not used, as one man readily handles on a four-wheeled truck two or three times the average load of a two-wheeled hand truck. The whole plant is laid out in definite one-way traffic lanes, carefully calculated to afford maximum access and minimum congestion.

Vertical Transportation

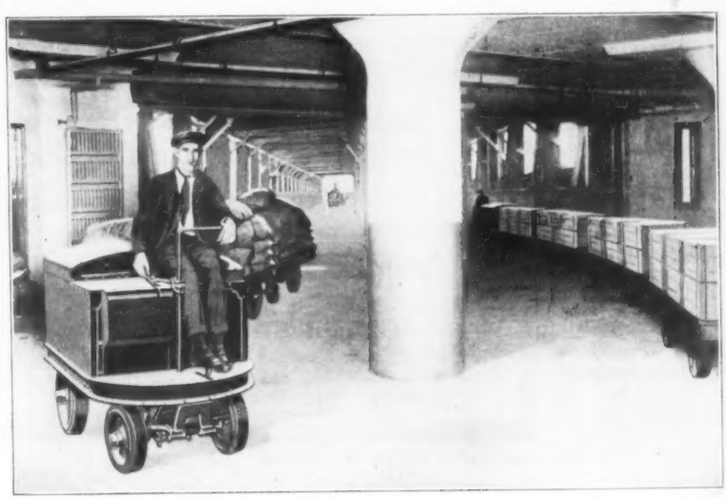
Speeding up and controlling the horizontal movement on one level, however, is not the most serious problem confronting most plant and warehouse managers. Comparatively few executives conceive the extent to which indifferent elevator service affects plant turnover, but as a matter of fact as the number of levels or stories increases, the elevators become more and more as the spout of the funnel, and their efficiency the measure of the rate of the flow of goods.

This fact was given a great deal of consideration in planning the Brooklyn Army Base, with the result that an elevator plant with many original and ingenious features was devised. There are in all 96 elevators, of which 90 are for freight and six for passenger service.

Ninety Operatorless Elevators

The 90 freight elevators are of 10,000 pounds capacity; 18 are located in the pier sheds, serve two floors, and have a speed of 100 feet per minute. Seventy-two are located in the warehouses, serve nine floors, and have a speed of 150 feet per minute.

The elevator platform is 9 feet 4 inches by 17 feet in the clear, and intended to carry four trucks. Automatic stops are accomplished wherein the elevator platforms invariably register accurately with the landing sills by means of an automatic levelling device, and the landing or hoistway doors are opened automatically when the elevator reaches the floor to which it has been dispatched. Operators on the cars are not used.



VIEW OF RUNWAY AND "TRACKLESS TRAIN" IN OPERATION AT BROOKLYN ARMY BASE

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PREST-O-LITE Service is a well-rounded, time-tested contract service, carrying obligations which the Company is bound to fulfill.

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Some of the most valued heating applications in industry were inspired or developed by our Engineers. Their experience is rich in just such knowledge as may save you much loss through costly experiment or inefficient methods.

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127

From seven to ten cars make a group which serves a "section" or some 325 feet in length, of each building unit, and out of such a group one is reasonably sure of getting some one car to serve his needs without waiting for any particular elevator. In other words, with ten cars in a group, the average waiting time will obviously be just one-tenth of what it would be if each car was placed separately.

Central Dispatch Control

Each group of elevators is handled entirely by a central dispatcher, who is located in a small office placed for convenience a short distance from the group. Before him is a table not unlike a telephone switchboard, with one upright and one horizontal panel. In the upright panel is a column of white lights for each elevator, each light representing a floor. At the top of each column is a colored light which indicates, when lighted, that all hatchway doors are closed and the elevator can be operated. The operating buttons are placed in rows in the horizontal panel.

In general or miscellaneous service, which is the most difficult to handle, the dispatcher receives calls for cars from the various floors. As an example, the dispatcher gets a call for a car from the seventh floor to take goods to the third floor. A quick glance at the vertical panel shows that car No. 5 is standing idle at the sixth floor, since its "6" white light is burning. The colored lamp at the top of the row is lighted, indicating that all doors are closed. The central dispatcher then touches "7" button and the white light disappears as the car leaves the sixth floor, and shortly signals arrive at the seventh floor by means of a light in bulb "7".

As the doors open automatically the colored light is extinguished and the car is out of the control of the dispatcher and cannot be run until some one on the seventh floor touches one of the seventh floor "door closing" buttons, of which one is on either end of the car and two others alongside the opposite entrances. As soon as the load has been run on and the door button pushed, the doors close and the colored light again appears, signaling to the dispatcher that all is clear to go ahead. He then touches "3" button, thereby dispatching the car to the third or destination floor.

The central dispatcher can readily detach any elevator of his group from the operating board. It then can be operated directly from the car switch provided therefor, and still retain its automatic door opening and automatic leveling features. Until disconnected from the central board, however, the car-switch remains inoperative. Excepting for convenience, or when goods are being sent to a floor where no one is working at the time, no one needs to ride on the elevators for the purpose of operating the elevator or its doors.

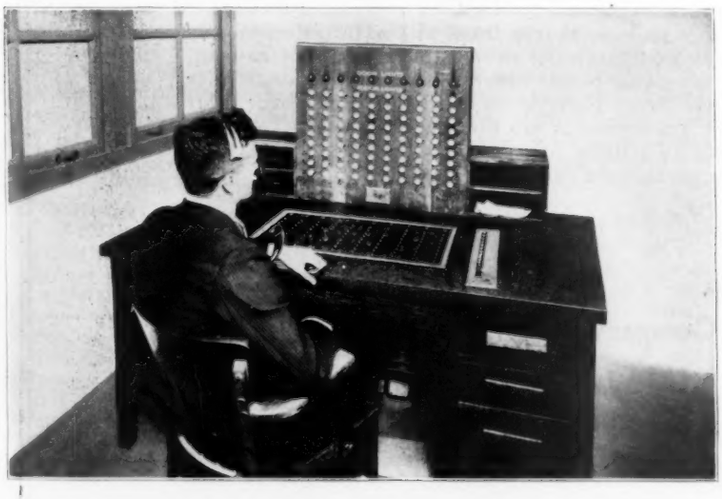
The Micro Leveling Elevator

The elevator equipment described in this article is an epoch-making development in the field of vertical transportation. It is a well known fact that with an automatic push-button elevator, in order to be adaptable for freight service where trucks are used for handling goods, the car platform must be brought to an accurate level with the landing and maintained there under all conditions of loading and unloading.

A push button controlled elevator has recently been developed which stops the car automatically with any desired accuracy and with any load within its capacity. When the position of the car changes during the loading and unloading, due to the lengthening or shortening of the cables, the car is automatically and quickly restored to the landing level. This remarkable accomplishment made it not only possible but more advantageous in this case to operate the freight elevators by a central dispatcher than by individual operators on each car. This new automatic elevator is known as the "Micro Leveling Elevator." The hoisting unit consists of the main driving machine and the micro-drive mechanism.

INTERIOR OF OPERATORLESS ELEVATOR CAR; PUSH BUTTON OUTSIDE AUTOMATICALLY CLOSES DOORS AND SIGNALS THE DISPATCHER

BANK OF TEN OPERATORLESS ELEVATORS WITH MICRO-DRIVE LEVELING CONTROLLER. INDUSTRIAL TRUCKS RUN ON AND OFF



DISPATCHER'S DESK FOR OPERATORLESS ELEVATOR SYSTEM. THIS MAN OPERATES TEN ELEVATORS, EACH COVERING EIGHT FLOORS AND BASEMENT

In the Brooklyn Army Base the main machine is of the worm gear type and is driven by a two-speed alternating current motor giving full and one-third speed. The "Micro Drive" consists of motor, brake and worm gearing of about one-tenth of the speed and power of the main machine. The micro drive is mechanically connected to the main machine through the revolving electro-mechanical main brake. The slow motion of the "Micro Drive" through the final few inches of travel in connection with a novel system of control, results in the car stopping level with the landing with any load to the full capacity of 10,000 pounds. Since the leveling is accomplished at slow speed and by means of the small motor, there is less wear and tear of mechanical and electrical parts.

Automatic Car Switch Control

Micro operation is applied to car switch as well as automatic push button control. In this case the operator throws his switch to the stop position on approaching the floor just as in the operation of the ordinary car switch control. If the car is within the micro zone, the micro drive functions and stops the car level with the floor. Although the micro or leveling zone extends 8 inches above and below floor levels, in actual service the average micro movement is usually not more than 3 inches.

Selective Automatic Door Opening and Closing Machines

The doors are operated by an ingeniously arranged mechanism which automatically opens the doors at the floor to which the car has been dispatched, and as the car approaches that floor. As the door operating machine starts to open the doors when the leveling zone is reached by the car, it is obvious that the leveling is accomplished while the doors are being opened and therefore no additional time is required for leveling. The door closing operation can be initiated only by touching a closing button either on the car or alongside the door opening on the floor.

Doors Represent a Radical Development in Construction

The doors themselves represent a radical development in elevator hatchway doors. Consideration of the trailer truck problem pointed the way to doors of maximum height and rising from fixed sills. Due to the high door openings and limited story height it was necessary that the door operating mechanism be so arranged as to first move the door horizontally into the hatchway a sufficient distance to clear the sill and door above and then to raise the door vertically to clear the opening. These doors are made of a steel frame with panels ¾ inch thick, of sheet steel and asbestos composition. In case of emergency, the cars can be run with the doors open.

Record in Building the Army Supply Base Plant

The Army Supply Base was constructed for the Traffic, Storage and Purchase Division of the War Department. The actual construction was carried on by the Turner Construction Company. Much credit is due both the Turner Construction Company and their many sub-contractors, who made a wonderful record in bringing the plant to a state of practical completion in the limited time at their disposal. The elevator installation was made by the Otis Elevator Company.

A section of the Barrett Specification 20-Year Roof on West Technical High School, Cleveland, Ohio. It was laid over another type of roof that had begun to deteriorate after only seven years of service.

How to be sure of a 20-Year roof—

THE West Technical High School, Cleveland, Ohio, pictured above, has just been re-roofed with a Barrett Specification Roof *over another type of roof that had begun to deteriorate seriously after only seven years of service.*

When the Barrett Specification Roof was finished we handed the City Officials of Cleveland a Surety Bond, issued by the well-known United States Fidelity & Guaranty Co., of Baltimore, which *guarantees* the roof to last for at least 20 years without maintenance expense of any kind. The probabilities are that this roof will last nearer 30 years.

There is only one way to be absolutely sure of getting the kind of roof you want—a genuine Barrett Specification Roof—and that is to write this standard paragraph into the building specifications:

"The roof shall be laid according to The Barrett Specification dated *May* 1, 1916, and the contractors shall obtain for us, without additional cost, the Barrett 20-Year Guaranty Bond."

This simple paragraph takes all the gamble and worry out of roofing, for both owner and architect.

Such expressions as "Barrett Specification *type* of roof," "Five-ply felt-and-pitch roof" or "Barrett Specification Roof, *or equal*," should never be permitted in a building specification.

The 20-Year Surety Bond Is Free

The 20-Year Surety Bond will be furnished on any roof of 50 squares or over, in cities of 25,000 or over, or in smaller places where Barrett Inspection Service is avilable. There is no charge for this Bond. Our only requirements are that the Barrett Specification shall be strictly followed and that the roofing contractor shall be approved by us.

A copy of the Barrett 20-Year Specification with roofing diagrams, sent free on request.

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Fuel Oil in Textile Mills

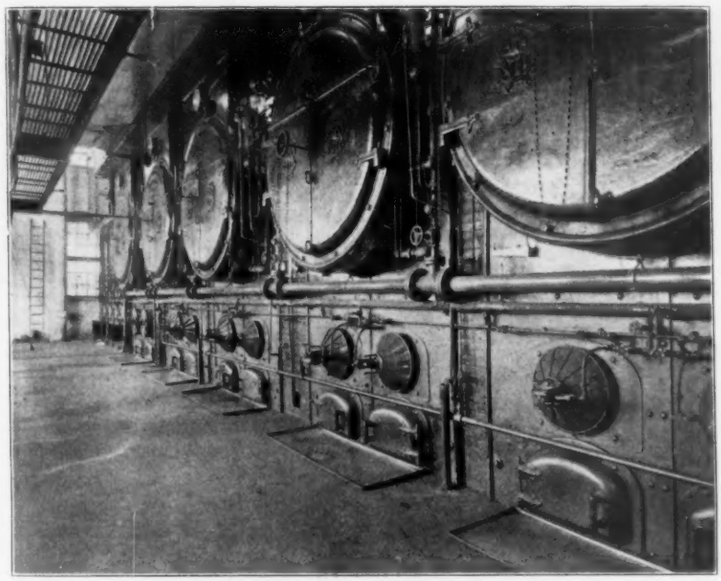
Installations in New England—Mills Should Investigate Before Considering Change

By *J. J. Tyrrell**

OR the past three or four years the fuel question has been one of foremost importance in the minds of manufacturers all over the country. This is particularly true of manufacturers in those sections which produce no fuel of any kind. In this respect, the predicament of New England and other textile manufacturing sections has been of the very worst sort.

In the early days of the textile industry, establishments were located almost without exception near sources of water power, and unfortunately it was very unusual for these locations to be adjacent or convenient to fuel-producing regions. Therefore, manufacturing plants located in such a manner have had to depend on fuel hauled long distances by rail and by water. The consequence is that almost any kind of an industrial disturbance affecting either the production or the transportation of fuel has been immediately and seriously felt; this, of course, being particularly true during the past four years.

For the above reasons the stage has been well set, particularly in New England, for the advent of oil fuel, which although new to this section of the country has aroused the interest of practically all mill owners and engineers.



A NEAT BOILER ROOM WITH FUEL OIL EQUIPMENT AT D. GOFF AND SONS, PAWTUCKET, R. I.

First Installation in Pawtucket

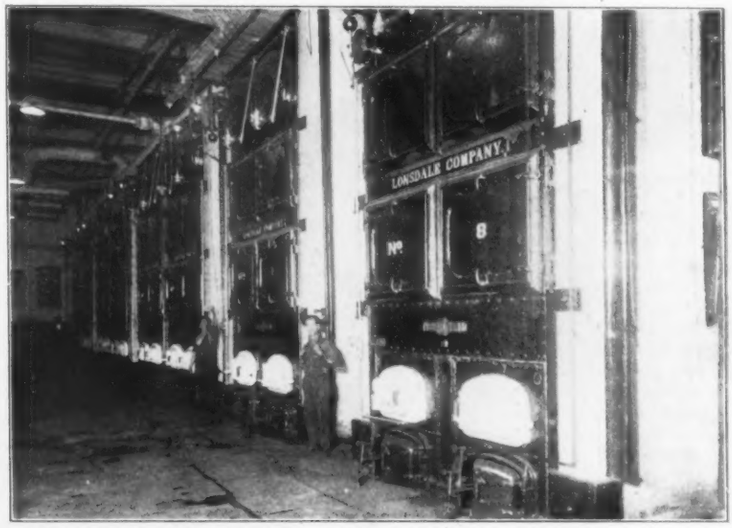
The beginning was comparatively small. In 1915 the owners of the Jenckes Spinning Company, Pawtucket, R. I., became interested and converted their handfired boiler room for fuel oil after the most persistent persuasion and solicitation on the part of the management of one of the largest of the producing companies. The success of this installation was immediately apparent, and excited the interest of many parties who had previous to this time been dubious as to the outcome of the experiment.

About the same time the American Woolen Company equipped its Riverside Mills in Providence, and immediately following this, its Bay State Mills at Lowell, Mass. Then after lengthy tests at Lawrence, Mass., the big woolen company equipped the mammoth Wood and Washington mills in that city. At the present writing, every indication makes it seem that every mill of this company will be burning oil for steam purposes before another year passes. The mere statement of this fact is an exposition of the success of fuel oil for steam power purposes and an indication of what one immense consumer believes to be the future of the fuel.

After the first installations at the Jenckes Spinning Company, and the Riverside Mills, new installations followed so rapidly that it is difficult to remember the sequence. Probably the most noteworthy of these older installations were those of the Manville Company, at Georgiaville, R. I., the Greystone Mills of the Joseph Benn Co., in Greystone, R. I., one boiler room of the Atlantic Mills in Providence, the Gorham Company in Providence, and the Peace Dale Manufacturing Co., in Peace Dale. All of these boiler rooms are today in operation using their original equipment, and the Atlantic Mills have since extended the oil burning apparatus to the main boiler room.

War Stopped New Installations

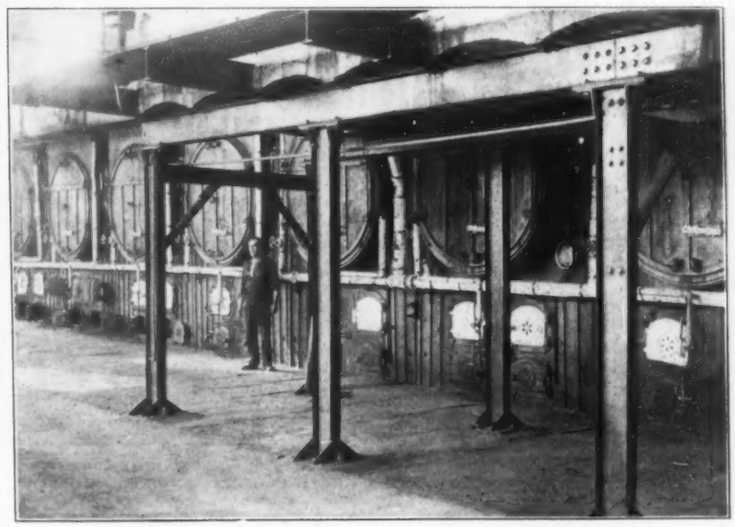
It will be noted that nearly all the above installations were in or near Providence, R. I. The reason for this is easily explained, as the fuel oil used for steam boilers is a different fuel from that ordinarily known as the domestic fuel oil, and is handled from independent stations. The station at Providence was completed earlier than those in other sections. Now, however, there are stations at every port of consequence along the Atlantic Coast and fuel oil is being handled at all of them.



BOILER ROOM OF LONSDALE COMPANY, LONSDALE R. I.

Rapid inroads into the coal consumption of this territory were made until the United States entered the World War, and then new work came to a standstill. This, however, was in no way due to the fact that fuel oil had fallen down in competition with coal, but was the immediate result of the Government's requisitioning of nearly all the tank steamers and the transferring of these steamers to the foreign service. It is a remarkable thing in remembering these circumstances to recollect that not a single oil-burning boiler room was shut down through lack of fuel, and it speaks volumes for the sincerity of the oil companies who continued to furnish fuel under oil contracts which contained prices less than one-half, and sometimes even one-third, of the market price of the fuel, and in face of all kinds of obstacles.

With the signing of the armistice, and after a few months of the first part of the transition period following the signing of the armistice, oil began to come into the country once more in volumes which far exceeded anything received before, and the sales of fuel oil in great quantities were a matter of daily occurrence until, at this writing, the limit of the transportation facilities was reached and the sale was stopped. It will probably be a few months before new facilities for transportation are provided, and the Mexican situation straightened out, and until this time the installation companies are at least thankful for a breathing spell.

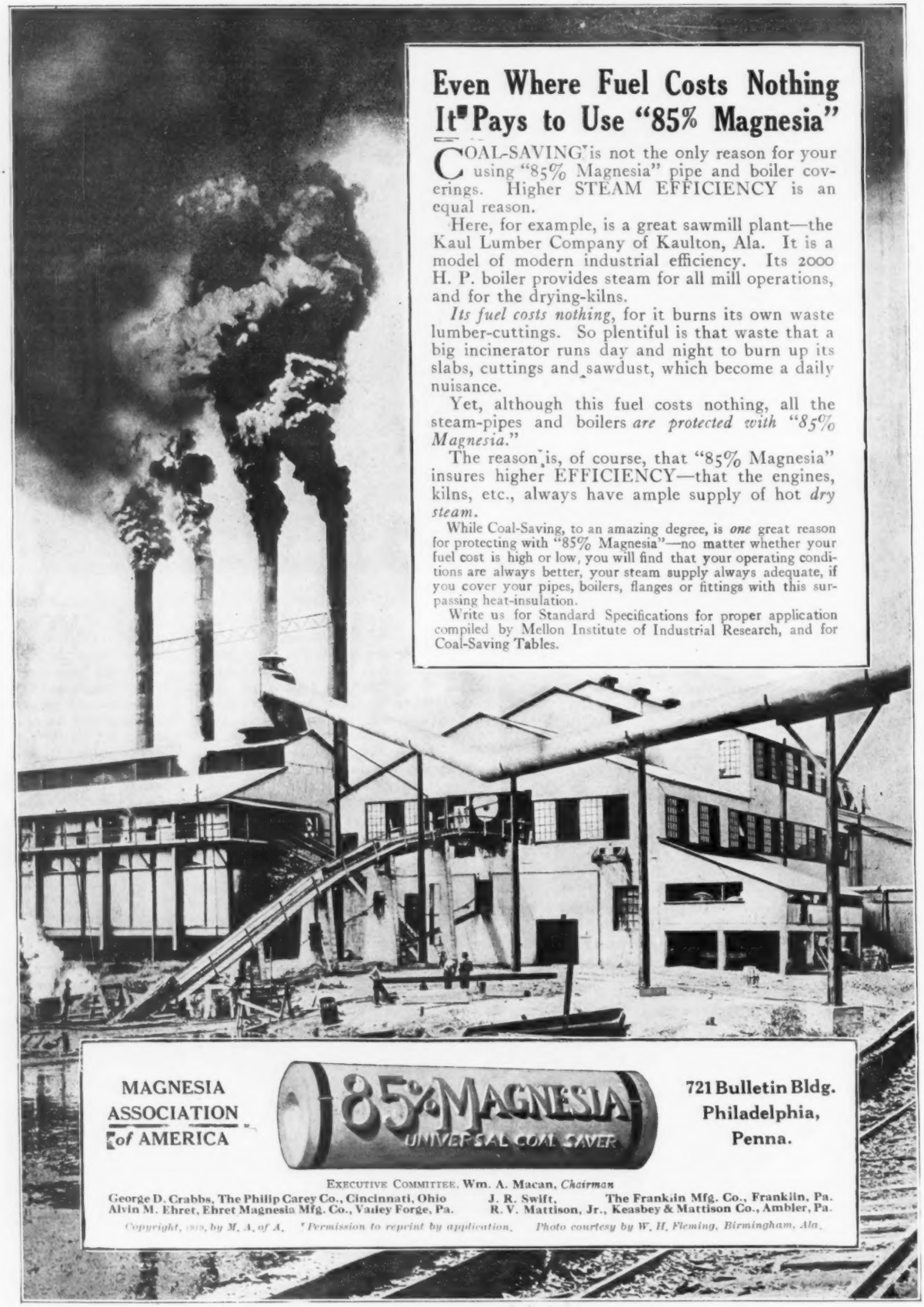


ONE OF EARLY INSTALLATIONS, MANVILLE MILL, MANVILLE, R. I.

Should Investigate Before Changing

From statements made by mill owners it is evident that they are entirely

* Chief Engineer, Hammel Oil Burning Equipment Co.



Even Where Fuel Costs Nothing It Pays to Use "85% Magnesia"

COAL-SAVING is not the only reason for your using "85% Magnesia" pipe and boiler coverings. Higher STEAM EFFICIENCY is an equal reason.

Here, for example, is a great sawmill plant—the Kaul Lumber Company of Kaulton, Ala. It is a model of modern industrial efficiency. Its 2000 H. P. boiler provides steam for all mill operations, and for the drying-kilns.

Its fuel costs nothing, for it burns its own waste lumber-cuttings. So plentiful is that waste that a big incinerator runs day and night to burn up its slabs, cuttings and sawdust, which become a daily nuisance.

Yet, although this fuel costs nothing, all the steam-pipes and boilers *are protected with "85% Magnesia."*

The reason is, of course, that "85% Magnesia" insures higher EFFICIENCY—that the engines, kilns, etc., always have ample supply of hot *dry steam*.

While Coal-Saving, to an amazing degree, is *one* great reason for protecting with "85% Magnesia"—no matter whether your fuel cost is high or low, you will find that your operating conditions are always better, your steam supply always adequate, if you cover your pipes, boilers, flanges or fittings with this surpassing heat-insulation.

Write us for Standard Specifications for proper application compiled by Mellon Institute of Industrial Research, and for Coal-Saving Tables.

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Alvin M. Ehret, Ehret Magnesia Mfg. Co., Valley Forge, Pa. — R. V. Mattison, Jr., Keasbey & Mattison Co., Ambler, Pa.

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satisfied and enthusiastic. However, although this is true in almost every case, there are a few users who have not received the returns expected. This condition is unfortunate, but true. But in every case there is a reason for dissatisfaction. Probably the most frequent reason is a poor and improperly designed installation. There have been a number of these made, and such will continue to be made as long as a purchaser will consider price before quality, and cheapness before good installation design. There always will be a wide range of equipment offered at varying prices, but the purchaser should remember that usually the cost of an installation is but a small fraction of the yearly cost of fuel that the equipment will handle, and that a small saving in boiler room efficiency which one installation will return over another will amply repay a wide difference in first cost.

A second reason for the failure of an oil-burning installation to render complete satisfaction is the fact that it was put in and oil purchased when the price of oil was high. This is particularly true of some installations made during the World War, some of which installations were made with no proper investigation of plant conditions and efficiencies on coal.

This brings up a point which should be emphasized. No plant should be converted to fuel oil before a thorough investigation of the boiler room efficiencies on coal has been made, and accurate knowledge had of the amount of steam being generated on coal, and the cost of this steam. However, this data is surprisingly hard to obtain in some plants. The writer has seen plant after plant, some of them being listed among New England's foremost mills, where there was absolutely no instrument to indicate performance in the boiler room, except the steam gauge on the boilers. These owners, in a large number of cases, were courageous enough to convert to fuel oil on a salesman's word that fuel oil would beat coal, although neither the owner nor the salesman could possibly know what the plant performance on coal was.

This condition clearly emphasizes the importance of instruments to the plant. The writer's personal experience has shown him that plants equipped with good water meters, fuel-measuring devices, steam flow meters, CO_2 analyzing apparatus, pyrometers and recording thermometers and similar apparatus, will have many times the cost of such apparatus repaid in the saving effected in a few months time, whether coal or oil is burned.

Details of Equipment

In considering a fuel oil installation, the chief features to get attention should be the burner, the furnace design, and then the pumping and heating apparatus.

The burner should be rugged, simple and easy to clean. It should have no moving or adjustable parts exposed to the heat of the fire. The oil passage must be long and of ample size to pass the heaviest fuels, and the steam for atomizing should not exceed 2 per cent. at normal rating. A burner throwing a fan-shaped flame is preferable, as it presents an under area for mixing with air for combustion, presents a greater radiating area to the cold surface of the boiler, and the fan-shape more nearly conforms to the furnace shape in stationary boiler practice.

The furnace designs used in converting a coal burning plant to fuel oil should be carefully scrutinized, and no expense spared to get the best possible furnace; for here can the greatest savings be effected or the greatest waste caused. The furnace used should be adapted to the burner, and it is usually true that an arrangement best suited for one burner will not give the best possible results with another.

The pumping and heating apparatus should best be provided in a single unit, and should be in duplicate throughout, with provision made for interchangeability of the apparatus. These sets are preferably purchased from a reliable manufacturer of equipment, complete and ready to operate, and not built up of component parts on the job.

One or two of New England's largest coal companies have been forehanded enough to see what was coming and have organized fuel oil companies, have erected terminal stations, and are preparing to sell fuel oil as well as coal to the consumers. This, with the fact that millions of dollars have been spent in New England ports for the storage and transportation of fuel oil for steam power purposes, makes plain to us that fuel oil has come to New England to stay.

Dyeing and Finishing Plant

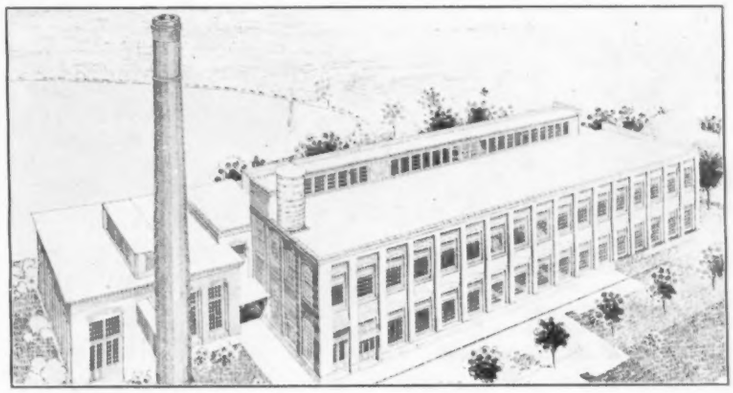
Gold Mark Knitting Co., Woonsocket, to Take Outside Work

TO provide for the dyeing and finishing of their own knitted products, which have been sent out to commission finishing plants, and also to add a department for dyeing and finishing woven woolen and worsted cloths, and dyeing worsted yarns for other mills, the Gold Mark Knitting Co, Woonsocket, R. I., have erected an entire new plant consisting of boiler room, generator room, pump and filter room dye house building and finishing building. This plant is located on Water street, Woonsocket, adjacent to the Blackstone River.

The buildings are of brick mill construction, and rest on a concrete foundation. The dyeing building and finishing building adjoin, and combined measure 185 feet long by 85 feet wide. The dye house is one story with monitor roof running lengthwise, 185 feet by 42½ feet. The finishing department is two stories, and has the same dimensions as the dye house. Both buildings will be lined throughout on the inside with white brick, and nothing will be left undone to make the working conditions as near perfect as possible.

A feature of the dyeing and wet finishing departments is concrete floors which are pitched from the center to the sides, to provide drainage and keep the floors dry. The heating and ventilating for this building is indirect type, designed to keep the dye house roof free from condensation and all working space free from visible vapor. All piping, including steam and hot and cold water pipes, will be covered to avoid dripping which might stain the material being processed.

The water supply will be pumped from the Blackstone River into large gravity type filters, with a capacity of 10,000 gallons per hour, and from there into a large concrete storage tank holding 20,000 gallons, then pumped to a tank on the roof and fed by gravity throughout the mill. The water is soft and with the filter process will give the most desirable shades and finishes, and save in chemicals. There is also a 5,000 gallon storage hot water heater. There will be no oil in the exhaust steam which will be used throughout for heating water and other purposes.



NEW DYEING AND FINISHING PLANT OF GOLD MARK KNITTING CO., WOONSOCKET, R. I.

Electric current will be generated by two turbo-generators, 550 volt, 3 phase and 60 cycle. All the machinery for both wet and dry processes will be driven by individual motors. There will be three 250 H. P. boilers to supply steam for power and processes, and oil will be used for fuel.

The new plant will be equipped throughout with the latest improved machinery for finishing knitted fabrics for women's and men's wear now manufactured by the Gold Mark Knitting Company. In addition, there will be complete equipment for dyeing and finishing woolen and worsted woven fabrics, such as cotton worsteds, fancy woolens in the line of cheviots, cassimeres, suitings, cheviot overcoatings, fine wool and worsted overcoatings, fancy clear finish and unfinished worsted suitings, piece dye serges and piece dye unfinished worsteds. Worsted yarns will also be colored, and there will be a special department for refinishing, spongeing and London shrinking.

Details of Machinery

The following is a list of the machinery being installed: James Hunter Machine Co., piece dye kettles, piece peroxide bleachers, washers and fulling mills; Klauder-Weldon Company, yarn dyeing machines; Roessler & Hasslacher Chemical Company, chemical peroxide bleaching vats; Utica Novelty & Mill Specialty Company, knit goods dryers; Frank Bailey, yarn dryers; John Heathcote & Son, woven cloth dryers; Philadelphia Drying Machine Company, yarn scouring machines; Tolhurst Machine Company, centrifugal extractors; G. W. Voelker Company, cloth presses and crabbing machines; Woonsocket Napping Machinery Company, napping machines, Parks & Woolson Machine Company, double-cylinder brushing machines, shearing machines; Curtis & Marble Machine Co., knit goods, roller presses, fanning and steaming machines; J. E. Windle, rolling, doubling and measuring machines; Nashua Steam Press & Boiler Works, high pressure steam press for refinishing and London shrinking purposes.

McClintock & Craig, Springfield, Mass., are the architects and engineers. Richard J. Hill assisted the architects on the plans and layout and will have full charge of the plant when it is in operation, which will be about April 1. Mr. Hill is a past president of the Woolen and Worsted Overseers' Association, and has had a long and successful experience as superintendent of dyeing and finishing in some of the largest mills in the United States. He came to Woonsocket from the position of superintendent of finishing at the Globe Mills of the American Woolen Company, at Utica, New York.

AETNA MILLS EXTENSION

A new weaving mill has been erected at Watertown, Mass., for The Aetna Mills Co., manufacturers of dress goods and men's wear. It consists of a brick building with concrete columns, foundations, piers, etc., and trimmed with a granite composite. The walls are of brick, beams of steel, wrapped and fireproofed with concrete. The stairs all the way from basement to roof are made of channel steel stringers with pressed steel risers and treads. Floors, landings and treads are filled with a 1½ inch concrete mixed with carborundum. The main floor beams are of steel with 5 inch hard pine floor planks, topped with diagonal ⅞ inch maple. The roof is supported on steel beams, the roof plank being of Douglas fir covered with Barrett specification roofing and copper flashings. The sash are of steel.

There is a fully equipped hospital room, fitted with a ceramic tile floor on a concrete bed. The tiles are 1 inch hexagonal. The entire building is equipped with automatic sprinklers on the wet pipe system, while the heat is provided on the vacuum system. There is one elevator shaft, 10 x 12 feet 2 inches, with a lift of 40 feet 2 inches. A part of the work consisted also in applying a dry pipe automatic sprinkler system to an old warehouse now in use.

There is also under way for the Aetna Mills an office and welfare building consisting of two stories, 50 x 100 feet, with a one-story annex 36 x 67 feet. This building, which is of very pleasing design, will add much to the appearance of the plant. Charles T. Main, Boston, is the architect-engineer for these new buildings.

TELL TALE TRACKS

Stopped By

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Report of Mill Construction for 1919

New Projects, Enlargements and Improvements

Statistical Review Compiled from Textile World Records

A REACTION from the dullness which prevailed during the war period in mill construction has been noticeable during the past year, the number of new structures being appreciably larger. This is especially true in the four principal divisions, cotton, wool, knit and silk, the knit industry leading as was the case last year. It is probable that the compilation made by TEXTILE WORLD for 1919 would have been even greater if equipment could have been more readily obtained, the manufacturers of machinery being unable to meet the demand for new looms, spindles, etc. Undoubtedly the high cost of construction also had a deterrent effect upon a number of new projects, although many concerns did not take this condition into consideration at all, believing that their increasing business would warrant any outlay in expense. A total of 289 is given as the number of new mills erected, this being in excess of last year but not reaching the mark attained in 1917, while the average for the past ten years is 260.

COMPARISON OF NEW MILL CONSTRUCTION OF LAST TEN YEARS

	1919	1918	1917	1916	1915	1914	1913	1912	1911	1910
Cotton	74	29	52	51	24	26	27	37	32	67
Wool	54	24	24	22	19	21	24	24	20	31
Knitting	84	120	97	113	111	110	142	122	92	113
Silk	61	49	86	60	25	51	54	46	38	34
Miscellaneous	16	27	38	33	40	37	30	36	26	29
	289	254	297	280	219	245	277	265	208	274

The cotton division makes a very creditable showing. Of the 74 mills or large additions here noticed, the yarn industry seems to have made the greatest gain, 22 new mills being listed under hosiery and fine and coarse yarns, while auto tire fabrics follow with five, heavy ducks also being included in the product of some of the latter plants. North Carolina appears to take the lead in new mill construction, while Rhode Island, Massachusetts, Georgia and South Carolina follow in the order named. Of the other states, Alabama and Tennessee may be noted, as well as California, the large plant of the Pacific Cotton Mills Co., at Los Angeles, Cal., operated by the Goodyear Tire & Rubber Company of California being a striking addition to the leading cotton mills of the year. Among other new mills in this division are those of the New York Net & Twine Co., Moodus, Conn., manufacturing seine twine and fish netting; Bibb Mfg. Co., Macon, and Columbus, Ga., yarns, warps, etc.; Couch Mills Company, Atlanta, Ga., manufacturers of Army, wide and sail duck; Plowman Yarn Mills, Lawrenceville, Ga., hosiery yarns; the Waquoit Mill of William Whitman & Co., New Bedford, Mass., automobile tire cords; Rhyne-Houser Mfg. Co., Cherryville, N. C., cotton yarns; Blue Ridge Cotton Mills, Connelly's Springs, N. C., cotton yarns; Dixon Mills, Gastonia, N. C., combed cotton yarns; Myers Mills, Inc., Gastonia, N. C., cotton yarns; Ridge Mills, Inc., Gastonia, N. C., cotton yarns; Ruby Cotton Mills, Gastonia, N. C., combed hosiery yarns; Victory Yarn Mills, Gastonia, combed peeler yarns; Margrace Mills, King's Mountain, N. C., bedspreads; Ronda Cotton Mills, Ronda, N. C., cotton yarns; Grace Cotton Mills, Rutherfordton, N. C., combed peeler yarns; Roaring River Yarn Mills, North Wadesboro, N. C., hosiery yarns; Spartanburg County Mills, Spartanburg, S. C., yarns; Superior Mills, Knoxville, Tenn., cotton thread; Mason Cotton Fabrics Co., Kent, O., tire fabrics; Narragansett Cotton Mills, Inc., Apponaug, R. I., tire fabrics and heavy ducks.

Many old established concerns made important enlargements and improvements, among them being the following: Fairfax Mill, Fairfax, Ala.; Opelika Cotton Mills, Opelika, Ala.; Coosa Mfg. Co., Piedmont, Ala.; W. A. Handley Mfg. Co., Roanoke, Ala.; Ashland Cotton Co, Jewett City, Conn.; Lund Textile Co., Fisherville, Mass.; Hamilton Mfg. Co., Lowell, Mass.; Hoosac Cotton Mills, North Adams, Mass.; Shawmut Mills, Fall River, Mass.; Warren Cotton Mills of the Thorndike Co., West Warren, Mass.; Towar Cotton Mills, Inc., Niles, Mich.; Oswego Yarn Mills, Inc., Oswego, N. Y., Carolina Cotton Mill, Maiden, N. C.; Tubular Woven Fabric Co., Pawtucket, R. I.

Woolen Mills

Of the new woolen and worsted mills, five are in New England, four in Pennsylvania, three in New York, two in California, one each in Portland, Oregon, and Chicago, Ill., while Canada has added three to its list. The majority of these mills are not of large size in comparison with the extensions made by old companies. Among the most prominent are those of the Federal Wool Mfg. Co., at Oakland, Cal.; Collins & Aikman Co., and the Griffin Company of Philadelphia, Pa., and the Philmont Worsted Co., Woonsocket, R. I.

Noticeable improvements have been made to a considerable number of plants already in operation, prominent among these being the plant of the Cyril Johnson Woolen Co., Stafford Springs, Conn.; Charles W. House & Sons, Unionville, Conn.; Peerless Woolen Mills, Rossville, Ga.; La Porte Woolen Mills, La Porte, Ind.; Monomac Spinning Co., Lawrence, Mass.; Selden Worsted Mill, Inc., Methuen, Mass.; Bell Co., Worcester, Mass.; Allen Woolen Mills, Rochester, N. Y.; The Windsor Mfg. Co., Philadelphia, Pa.; Alsace Worsted Co., Woonsocket, R. I.; Island Woolen Co., Baraboo, Wis.; Guelph Carpet & Worsted Spinning Mills, Ltd., Guelph, Canada.

New Knitting Mills

The knitting industry again makes a decided showing and still appears to lead in the number of new establishments although the gain here is not so great as last year when 125 mills were credited to this branch. Thirteen new mills will be operated on sweater coats, these being located principally in New England, New York State and Pennsylvania, silk hosiery will be the product of nine new plants covering the same states with the addition of New Jersey, while those of the southern States will confine their operations to cotton or mercerized hose. Jersey cloth will be manufactured by seven new concerns and tinsel threads, tubular laces and chenille have also been added to this branch of the textile industry.

Some of the important new mills are the Chapman Knitting Mill, Yonkers, N. Y.; Gehris Hosiery Co., Philadelphia, Pa.; Mutual Hosiery Mills, Inc., Philadelphia, Pa.; Stroudsburg Textile Co., Stroudsburg, Pa.; Southern Hosiery Mills, Chattanooga, Tenn.; Blue Star Knitting Co., Milwaukee, Wis.; Millbridge Knitting Mills Co., Millbridge, Me.; B. Ganim & Bro., Gloversville, N. Y.; Wergen Knitting Mills, Reading, Pa.

Enlargements and improvements to knitting mills have been made on an extensive scale, while the purchase of existing mills or leasing of the same has been a feature of the year's expansion. Prominent in the latter movement is the taking over of the W. E. Tillotson Mfg. Co., Pittsfield, Mass., by George W. Goethals & Co., New York, a newly organized company. Among the noted enlargements may be mentioned those of the Bath Knitting Mills, Bath, N. Y.; Sellers Hosiery Mills, Burlington, N. C.; Durham Hosiery Mills, Durham, N. C.; Hemshaw Hosiery Mills, Oxford, N. C.; Green-Haas-Schwartz Co., Cleveland, O.; Dolphin Hosiery Co., Toledo, O.; Zantzen Knitting Co., Portland, Ore.; Taubel Bros., Hatfield, Pa.; Progressive Knitting Mills, Linfield, Pa.; Beattie Hosiery Co., Sellersville, Pa.; Liberty Hosiery Co., Rock Hill, S. C.; Everwear Hosiery Co., Milwaukee, Wis.; Holeprooff Hosiery Co., of Canada, Ltd., London, Ontario. The Victory-Vassar Knitting Mills, Detroit, Mich., have been organized through the consolidation of the Victory Knitting Mills of Detroit and the Vassar Knitting Mills, Bay City, Mich., while the Augusta Knitting Corp., Utica, N. Y., has taken over all plants of the Augusta Knitting Co.

The silk industry as in past years seems to show the greatest expansion in New Jersey and Pennsylvania.

The Silk Industry

Pennsylvania appears to have made a decided advance in this branch of mill construction. Several new mills have been erected there during the year, while many new concerns have taken over old plants or leased space in established mills. Among the former may be included the R. K. Laros Silk Co., Bethlehem, Pa.; The Duplan Silk Co., Nanticoke, Pa.; Central Penn Silk Co., Phillipsburg, Pa.; Lederer Bros., Pottstown, Pa.; Connerton Silk Co., Scranton, Pa.; Palmetto Silk Co., Scranton, Pa.; L. A. W. Silk Co., Inc., Stroudsburg, Pa.; Pocono Ribbon Co., Stroudsburg, Pa.; George R. Goebel Silk Throwing Co., Wilkes-Barre, Pa. The silk industry at Paterson, N. J., has been augmented by the Al Shaba Silk Co.; Hadlee Silk Mills; Lawrence Bros.; H. Ronesburg Silk Co., and the Textile Silk Works. The Watson Silk Co., Phillipsburg, N. J., is noted; also the Victory Broad Silk Co., Grantwood, N. J., Kingsboro Silk Mills, Inc., and the Superior Silk Mills, Inc., of Gloversville, N. Y.; Acme Silk Mills, Inc., Poughkeepsie, N. Y.,; Glendana Silk Mill, Pawtucket, R. I.; Queen Quality Silk Mills, Inc., Valley Falls, R. I.

Among the miscellaneous mills listed, ten are confined to dyeing, bleaching and finishing, one to the manufacture of jute bags, another to hemp fiber, two to twine and thread manufacturers, and a third to grass rugs. The American Textile Art Printing & Dyeing Co., Inc., Fort Wayne, Ind., capitalized at $500,000, starting operations last spring, is one of the new projects attracting attention.

Notable additions and improvements have also been made during the past twelve months by the Lowell Bleachery, Lowell, Mass.; Weiss, Willheim & Co., Passaic, N. J.; Union Hill Silk Finishing & Dyeing Co., Union Hill, N. J.; Boger & Crawford, Philadelphia, Pa., and the American Finishing Co., Memphis, Tenn.

The detailed report of new mills, important changes, enlargements and improvements follows:

Details of Mill Construction

NEW COTTON MILLS

Alabama, Huntsville. Lincoln Cotton Mills of Alabama; William L. Barrell (Lawrence, Mass.), pres.; Theophilus King (Boston, Mass.), vice-pres.; W. I. Wellman (Huntsville), sec. and treas.; N. C. Roe, agent and buyer. (Took over Abingdon Mills.)

Speigner. Penitentiary; 118 looms installed for weaving cotton cloth.

Talladega. Samoset Cotton Mills; capital increased to $1,000,000; Wellington, Sears & Co., Boston, selling agents. (Formerly Chinnabee Valley Mills.)

California, Los Angeles. Pacific Cotton Mills Co.; $6,000,000; F. A. Selberling, pres.; W. A. M. Vaughan, treas.; S. A. Steere, supt.; fabric for auto tires, etc.; new mill; 33,264 spindles, 45-72-in., 8-72-in. looms; electric power; sell direct. (Operated by Goodyear Tire & Rubber Company of California, Los Angeles, Cal.)

Connecticut, Ansonia. Shelton Textile Fabric Co.; $25,000; Robert E. Morrey, pres. and treasurer.; John L. Harvey, supt.; elastic and non-elastic braid; 250 braiders.

Moodus. New York Net & Twine Co.; $200,000; H. F. Roberts, pres.; A. W. Chaffee, treas.; A. K. Roberts, supt.; cotton seine twine and fish netting; 3,100 spindles.

Georgia, Atlanta. American Twine & Cordage Mills; $35,000; Paul J. Talbot, pres.; K. L. Jones, sec. and treas.; S. V. Upchurch, supt.; twines; new mill; 1,728 spindles.

Atlanta. Couch Mills Company; $232,000; W. D. Couch, pres.; S. H. Stark, treas.; W. E. Willingham, supt.; Army, wide and sail duck, filter cloth, etc.; 6,000 spindles, 90 looms; buy 13s-2 and 3-ply, 2/20s, 7/3 and 4-ply.

Cedartown. Cedartown Cotton & Export Co.; new twisting mill, 75, x 240 feet; 6,000 twisting spindles, 10 reels, 5 spoolers, 2 ball and chain warps.

Columbus. Georgia Webbing & Tape Co., 927 Fifth avenue; John S. Roberts, pres.; M. B. Roberts, treas.; erected mill; webbing, spinning and twister tape; 2 looms; buy 12/4, 12/3, 8/4, 6/3 ply yarns.

Lawrenceville. Plowman Yarn Mills; $300,000; C. M. Plowman, pres.; S. V. Pitts, treas. and buyer; J. W. Jolly, supt.; hosiery yarns; 10,000 ring spindles. (Taken over Lawrenceville Yarn Mills.)

(*Continued on page* 501)

A New Type of Cotton Mill

Mushroom Concrete Construction—All Departments Connected by Conveyor Systems

CONSTRUCTION is nearly finished on the new Indian Head sheeting and flannel mill of the Nashua Manufacturing Co., Nashua, N. H., of which Amory, Brown & Co. are selling agents. The mill was designed by Lockwood, Greene & Co., engineers, Boston. There is also to be an office building adjoining the new mill, and this will be carried out in the same style, with entrance gates to the mill yard at either side. It will contain a hospital and a meeting room for the overseers of the mill.

New Standard of Construction

It is believed by the engineers that the mill reaches the highest standard of construction and arrangement, both inside and outside, that has been attained in buildings of this character, and is an answer to the demand for better mills to meet the condition of higher labor cost by providing more effective working conditions and cutting out unnecessary handling and non-productive labor.

The new building is being erected at the Jackson department of the Nashua Manufacturing Co. and takes the place of several old buildings which have been torn down. It will occupy a ground area of 560 x 122 feet, and will have a central section six stories in height, and two end sections of three and five stories, respectively, provision being made for adding two more stories at some future day; also for increasing the length to about 1,000 feet. The equipment will include 55,000 spindles, 1,200 looms and complementary machinery for making sheetings, also 500 looms for weaving flannels and is expected to be in operation early in the spring of this year. Construction work is by the Aberthaw Construction Co., Boston, and is practically completed.

Mushroom Type Concrete Construction

The exterior treatment is designed on quite different lines from any previous cotton mill. The entire exterior surface will be in concrete and of a modern adaptation of classic lines. The construction is of the mushroom type, a novelty in manufacturing buildings and providing perfectly flat ceilings support by columns. This with the almost continuous window sash over all stories, will greatly aid in day-lighting the work during the hours when daylight is available, and will allow an effective scheme of general illumination to be installed for artificial lighting for overtime work or at the end of short winter days.

The main facade on the main street is accented by vertical pylons and the wall surfaces are so arranged that the building does not require an expensive cornice, but has a simple coping which breaks through at the pylons, giving the building an attractive silhouette.

The window treatment of this facade is planned to give the maximum amount of glass area but the spacing of the piers, which occur 14 feet on centers, will give enough solidity to the building to make a very monumental appearance. The first story forms a base for this pylon treatment and rustication lines are carried through so that the building will have a very solid appearing base for the high pylons above. The only ornament which occurs on the building will be placed at the top of the pylons and consists of the famous Indian Head Mill trade mark worked into a shield.

Arrangement of Departments

Of greater interest perhaps than the novel exterior, are the arrangements of departments and for conveying of the material through the plant. The engineers have started by turning the ordinary cotton mill upside down and have placed the picker room on the roof. As a result of starting at the top with the first process, the work flows naturally through the mill largely by gravity, and on account of the system of conveyors and gravity chutes which have been worked out, there is no need of an elevator except to carry some of the loom beams and machinery and passengers. The idea of a six-story cotton mill with only one elevator, and that not used in the manufacturing processes, is certainly unique, and possibly somewhat startling to our old line cotton manufacturers.

Bale Breakers

The baled cotton is brought to bale breakers on the ground floor of the cotton storehouse across the mill yard, and from the bale breakers it is blown to the picker room on the top floor, where Norton distributors place it automatically in the hoppers of the breaker picker which are in two rows, back to back. The delivery ends of the finisher pickers are on opposite sides of the room and very close to two lap conveyers which carry the picker laps to the two card rooms on the fourth and fifth floors. These two rooms are duplicates, the cards being arranged in two groups on each floor and the processes running across the mill instead of lengthwise of the mill as is common practice. There is a drawing frame within sixty feet of every card and a slubber within twenty feet of the delivery end of each finisher drawing frame, giving little opportunity for trucking in this room. A detailed description of the main feature of the mill is given as follows through the courtesy of the engineers:

The Conveyor Systems

There are four distinct systems:

1. Conveying laps from the picker room to the cards and returning the empty lap-rods.
2. Conveying roving from the roving frames to the spinning frames and returning the empty bobbins.
3. Conveying bobbins of warp yarn from the spinning frames to the spoolers, and filling yarn from the spinning frames to the looms and returning empty bobbins.
4. Conveying rolls of cloth from the first and second floors of both the new mill and No. 3 mill to the cloth room in present No. 2 mill.

Lap Conveyor

The lap conveyor is made up of gravity rollers, spiral chutes and inclines. For supporting the laps a wooden cradle will be used. The lap with the lap-rod in its center will be set horizontally on one of these cradles, a groove being provided into which the head on the rod will fit to prevent it from slipping. After a lap has been taken off in the card room an empty rod can be put in its place to be returned to the picker room.

On both the east and went ends of the picker room and running full width of pickers, north and south, and in front of each row of finisher pickers, there will be a horizontal gravity conveyor. At the north end of each a spiral chute will connect to other horizontal gravity sections that will extend the full length of cards on the fifth floor, in both the east and west sections. At both the east and west ends will be others spirals which will connect to still other gravity sections on the fourth floor. These will also run the full length of the cards.

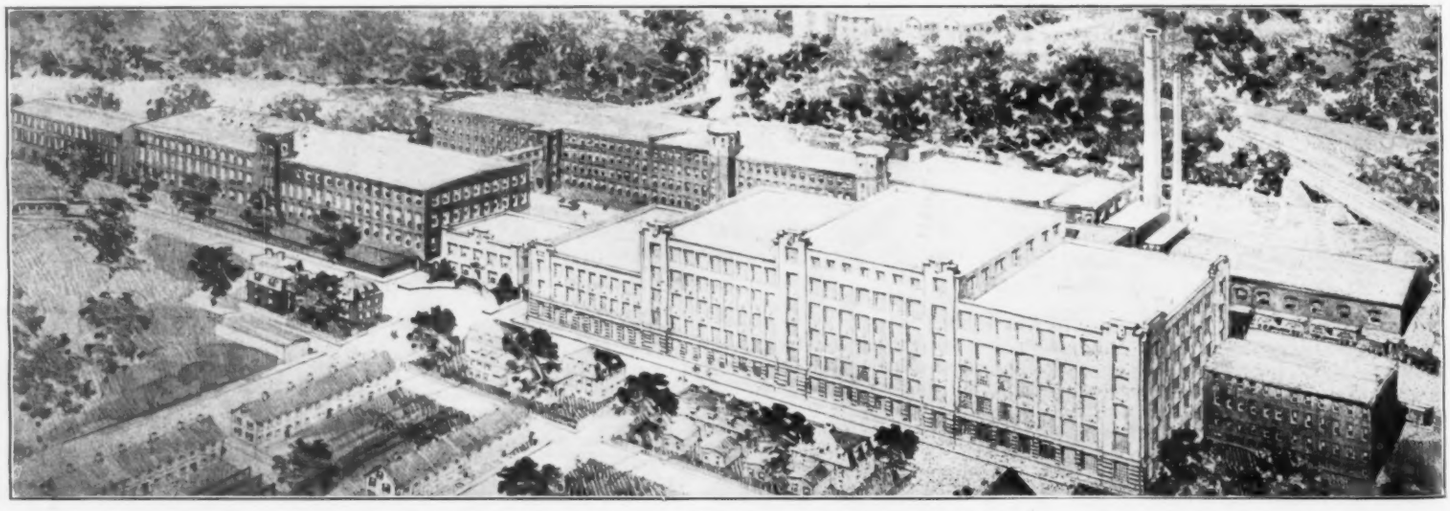
At the extreme end of each will be an inclined elevator, up to the picker room. That from the east end will cross the picker room to the west end, then turn the corner and run along the west wall, above the first conveyor, and with a long downward incline connect again to the first horizontal conveyor. The incline from the west end will connect in a similar manner to the first conveyor on the east end of the picker room. This therefore makes a complete circuit of both ends of the picker room and all four sides of the card rooms.

Handling Laps

The picker tender will doff the pickers, and instead of placing the lap on the floor or stand, will put it directly onto one of the cradles, which will always remain on the conveyor. Although these cradles will be continually moving, if left alone, yet the slightest pressure against them will hold them at any point. As soon as the operator, therefore, has put the lap on and taken his hand off the cradle will begin to move and unless stopped will continue through two of the card rooms, back to the other side of the picker room, then down through the other two card rooms and back to its starting point.

In either one of the card rooms the cradles can be stopped by hand, the lap taken off and an empty rod put on and the cradle allowed to pass along. Blocks can be used in this room to hold the cradles back, but as there will be a continuous flow, and if blocked it might cause a shortage of laps in another part of the room, they should be allowed to keep going.

As the system is continuous it can be used as a storage place for laps and a lap made on any one of the finishers can be delivered to any part of any of the four card rooms. With the exception of the inclines, the whole sys-



JACKSON MILLS OF THE NASHUA (N. H.) MFG. CO., NEW INDIAN HEAD MILL IN FOREGROUND

tem operates by gravity with the horizontal runs set at just enough pitch to keep things moving.

Automatic fire doors, approved by the insurance companies, will be provided for all openings through floors so there will be no chance of a fire passing from one floor to another.

Roving Conveyor

In order to have reasonable size boxes for doffing the roving frames, the mill has adopted a size that requires two boxes to a doff. The roving frames are all 84 spindles, 9 inch x 4½ inch bobbins. A special truck has been made to carry two of these boxes at once. This consists of a gravity section set on two large wheels set in middle at the sides, and one smaller wheel at both front and back. The wheels are of such size that when the truck is tilted so as to rest on the front wheel, the top of the gravity at that point is 9 inches above the floor, and at the back 11 inches. A trigger holds the boxes in place. This is released by a foot pedal and can be operated from either end of the truck. A pipe handle is placed at the back to assist in pushing the truck around. Trucks of this description will be used in the card room for doffing purposes and in the spinning room for distributing the roving and collecting empty bobbins.

The Spiral Chute

The conveyor itself consists of spiral chutes from the fifth and fourth floors to the third, which is the spinning room. On this floor are two 36-inch belts running the full length of the room from about the middle of each direction. As these belts will be used for both roving and yarn there is a separator to keep the two sized boxes apart. The heavier, or roving, boxes will always be on the outside. The upper part of the belt will be 41 inches above the floor while the lower part will be 5 inches above and both will run parallel with the floor for nearly their whole length. The upper will carry the full boxes while the lower will carry the empties back to the card room by delivering them onto vertical lift elevators.

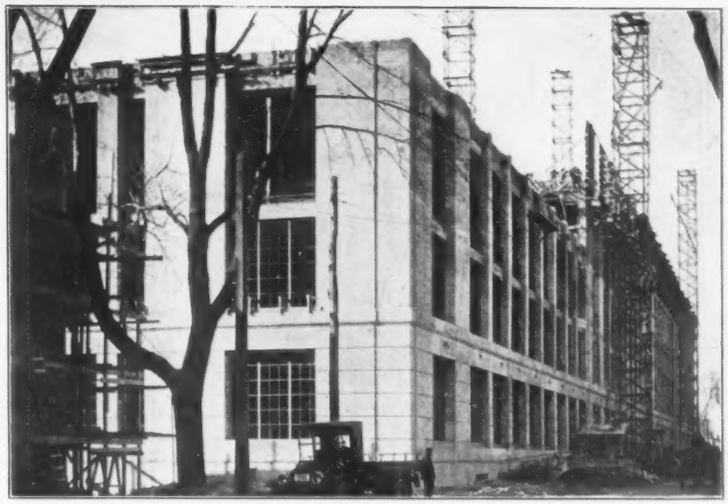
At about the center of the space between the roving frames will be two spiral chutes with feed openings on both the fourth and fifth floors. A short piece of gravity section will be placed at each opening with end set about 8″ above floor level. At the lower end of the spirals there will be curved chutes starting near the ceiling in the third story and delivering onto the outside of the upper part of the 36″ belts, one of the spirals delivering to the belt running east and one to that running west.

At three points, equally divided, along the end of the warp frames and two points along the filling frames will be discharging places. These will be made by leaving off the guard rail and placing a curved slide down on to a short piece of gravity section set about 11″ above the floor. A stop will be provided at the end of these sections. These will serve as storage stations or reservoirs. Stations can also be obtained on the main belt by placing thin steel plates, which will fit over the top of the belt. A box will then stop at this place and remain there until enough others have come along to start it going again.

Loading Points

At five places near the discharging points the guide on the lower belt will be left off and there will be the points for loading the empty boxes onto the lower belt. This can be done by pushing the truck up to the belt and letting the box slide onto it. It will of course be possible to lift the box onto the belt at any point if desired.

This lower part of the belt will deliver onto gravity rollers near the middle of the mill, which in turn feed onto the two vertical lift elevators and deliver the boxes onto gravity sections on either the fourth or fifth floor. This is the only point at which this system will not be automatic as it will be necessary here to operate a switch, controlled from either fourth or fifth floor, in order to deliver the boxes on the floor wanted. The gravity sections at the delivery end of the elevator will be resevoirs and set 11″ above the floor at the end.



A CORNER OF NEW INDIAN HEAD MILL SHOWING DIGNIFIED ARCHITECTURE

Handling Roving

The method of operation will be for the roving frame operator to doff her frame as usual, using two boxes on the special truck. She will then push the truck to the end of the receiving section and release the trigger by her foot. The boxes will then slide off the truck and continue down the chute.

After the boxes are delivered onto the belt in the third story, the person who delivers the roving to the spinning frames closes a switch by means of a lever which will divert the box from the main belt to the gravity section. The special truck is then pushed up to the end of the gravity section and the box allowed to slide onto it. After distributing the roving he collects the empty bobbins in the same boxes and pushes the truck head-on against the lower belt, at points designated.

After releasing the trigger the end of the box will slide onto the belt and will be pulled along and into its proper position. From this belt boxes will continue to the elevator and be delivered to the floors above on the gravity section. The roving frame operator will obtain her empty boxes from the end of this section by allowing the boxes to slide onto her truck, and the process is ready to be started over again.

Yarn Conveyors

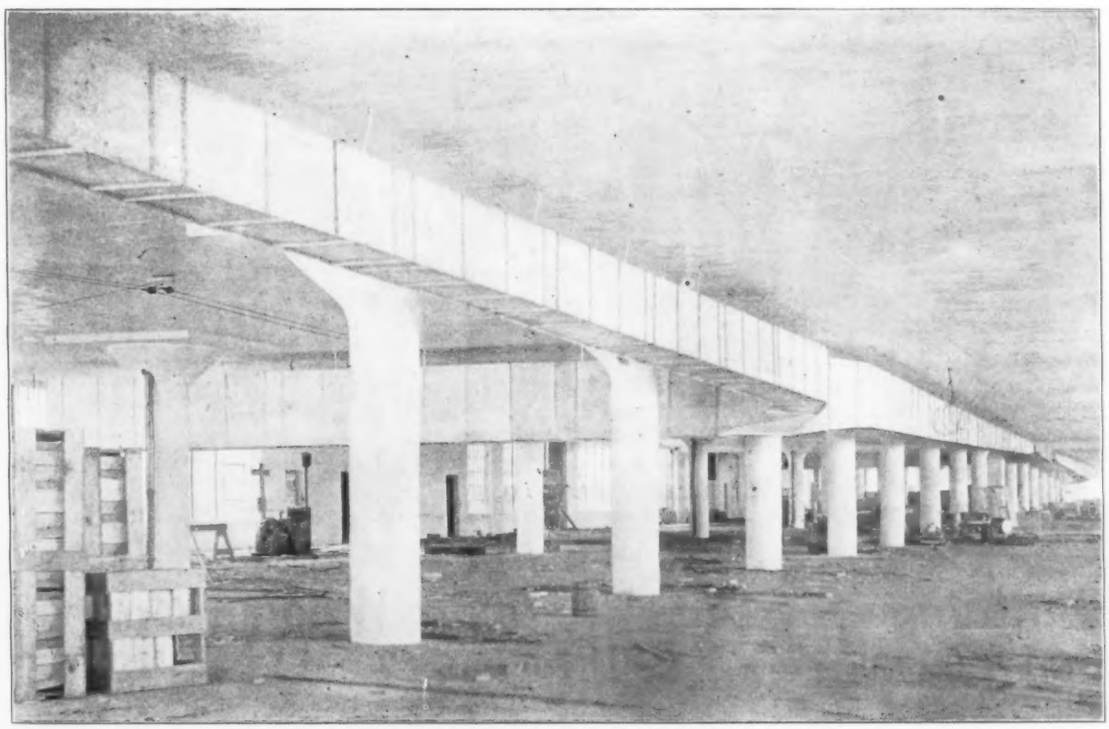
Yarn conveyors are really divided into two separate systems and will be described as such. The first will be for handling the warp yarns from the frames to the spoolers, and the empties back. It has been decided to use practically the same type of boxes for doffing as are now in use. Four of these boxes will be required for three sides of spining frames.

The conveyor for these boxes will be on the same 38″ belt that distributes the roving boxes to the spinning room, using the side of the belt next to the wall. The top of this belt, on which the full boxes will be placed, is 41″ above the floor and the bottom for empties 5″ above floor. At the northeast corner of the room is a spiral chute which delivers to a horizontal gravity conveyor that extends along the east end of the mill on the second floor.

Inclined Elevators

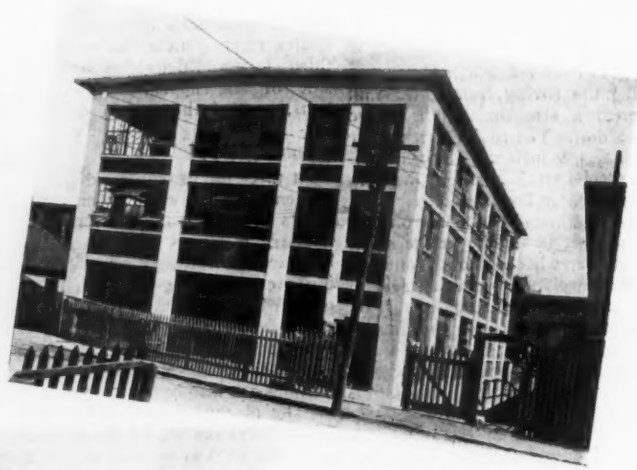
In this same northeast corner near the spiral is an inclined elevator which delivers to the inside of the lower belt on the third floor. The method of operation is as follows: The doffer will have empty boxes on a truck, similar to the one now in use, and after doffing a frame take the filled boxes to the conveyor. They will be placed on the back side of the top belt which travels towards the east end of the mill. They will pass along and be delivered to the spiral chute which in turn will deliver them to the horizontal gravity on the second floor. This will be a storage section, or reservoir.

From this storage place they will be taken by hand to the spoolers and when emptied placed on the inclined elevator and delivered to the inside of the 36″ belt on the bottom. As this belt travels the full length of the spinning frames, and always at the same level, the boxes can be put on or taken off at any point. Steel plates will also be furnished for this lower belt, which can be placed at any desired points to act as reservoirs. At the extreme end of the spinning frames, near the middle of the length of



INTERIOR VIEW OF NEW INDIAN HEAD MILL OF NASHUA MFG. CO., SHOWING YARN CONVEYOR ATTACHED TO CEILING

American Woolen Co., *Shawsheen Mills*, Andover, Mass. 20,000 sq. ft. *Photograph taken January 10, 1920*



AMERICAN WOOLEN CO.
Puritan Mills
Plymouth, Mass.
17,000 Sq. Ft.

AMERICAN WOOLEN CO.
Washington Mills
Lawrence, Mass.
264,070 Sq. Ft.

AMERICAN WOOLEN CO.,
Anderson Mills
Skowhegan, Me.
50,400 Sq. Ft.
Photograph taken December 26, 1919

AMERICAN WOOLEN CO.
American Waste Exchange
Medford, Mass.
134,135 Sq. Ft.

Concrete Buildings for the American Woolen Co.

Built by the Turner Construction Co.

The American Woolen Co. Has Awarded Turner Five Contracts

THE first was the Washington Mills, Lawrence, Mass., signed September, 1918—the 5th, the Shawsheen Mills, Andover, Mass., signed September, 1919.

The other three were:

Puritan Mills, Plymouth, Mass.
Anderson Mills, Skowhegan, Me.
American Waste Exchange, Medford, Mass.

The five buildings shown on the opposite page have a total of 485,605 square feet. W. B. Knowlton, Engineer for the American Woolen Co., was in charge of all work.

When a client gives us a second, third, or fifth contract, we believe it is because of satisfactory performance—good work economically and quickly done. 72% of all our work, up to October 1st, 1919, has been *repeat order* business.

Turner has executed 48 contracts for mills and warehouses in the Textile Industry. Among our clients are:

Belleville Warehouse Co. (Wm. Whitman Co.) (2 contracts.)
Black Cat Textiles Co.
Chalmers Knitting Co.
Griswold Worsted Co.
Nashua Mfg. Co. (2 contracts)
National Spun Silk Co.
Naumkeag Steam Cotton Co.
Notaseme Hosiery Co.
Sanford Mills (5 contracts)
Scranton Lace Co.
Susquehanna Silk Mills (2 contracts)
Thatcher Spinning Co.
Worumbo Manufacturing Co.

"TURNER *for* CONCRETE"

TURNER CONSTRUCTION COMPANY, *New York City*

PHILADELPHIA
1713 Sansom Street
Presser Building

ATLANTA
Chamber of Commerce Bldg.

BUFFALO
Prudential Bldg.

BOSTON
Oliver Ditson Bldg.
178 Tremont Street

the mill, such empties as may not have been taken off will collect and can remain for an indefinite length of time as the belt will simply slide under them.

Filling Yarn Conveyors

The second section of this system is for handling filling yarns. This is the same type on the third floor in that it makes use of a part of the 36" belt. This will deliver the boxes to a spiral chute near the middle of the mill, which in turn delivers to an 18" horizontal belt on second floor.

At the western end of this is a spiral which delivers to similar belt that will extend the full length of the first floor. At the extreme eastern end will be a diverter delivering to the underside of this same belt. Near the middle of the mill will be an inclined elevator to the third floor which will deliver to a horizontal gravity section that will run perpendicular to the main belt about one-half way across the mill. The bobbin cleaners will be located near this gravity section.

In both the first and second stories in the wide alleys across the mill, between the ends of loom lays, is a horizontal gravity conveyor used by the battery hands. At the centre row of columns a five foot removable section will be provided in each of the gravity conveyors. These can be taken out at any time.

Handling Filling Yarn

The filling will be doffed into boxes carried on trucks similar to those now in use. These will be pushed to the conveyor and the full boxes placed next to the wall on either the top or lower belt. If on the top, which will be 41" above the floor, it will pass towards the west end of the building around the diverter onto the bottom belt, then along this belt onto the spiral at the middle of the mill.

This spiral delivers onto the 18" belt on the second floor and on the top side, which will be 20" above the floor, and travel to the west end of the mill. Here a spiral will deliver it to the top side of another 18" belt, set 20" above the floor, and on the first floor, and will continue east the full length of the mill. A diverter will then allow the box to pass to the under-belt, at the northeast corner of the mill, which will deliver it onto the incline near the middle of the mill and back up to the third floor onto the gravity section where boxes will collect.

The Weave Room

In the weave room at the wide alleys across the mill between the looms, the horizontal gravity section will be placed with about 2'-6" between its end and the main conveyor. The bobbin man will step into this space and take off a full box as it passes, placing it on the gravity conveyor and giving it a slight push.

The bobbin man will collect the empty bobbins, put them in the boxes and then place the boxes on the top belt again, which will finally deliver them to the third floor where the strippers will clean the bobbins ready for the spinners again.

There may be times when full boxes will get back to the third floor but in that case they will simply be put back onto the belt and continue around the course again. It will be possible to use the steel plates on this system also, provided storage stations are wanted at any points along the main belts.

Cloth Conveyor

This consists of three belts and is to be used to take the cloth rolls from the new mill and No. 3 to the cloth room which will be located in the present No. 2 mill.

From the first floor of the new mill and also No. 3 mill, inclined belts will extend up through the second floors and along the outside of the bridge until they meet at about the middle of the space between the buildings. At this point and perpendicular to it will be a third belt extending into the second floor of No. 2 mill.

Rolls of cloth can be placed on either of the first two belts and from either the first or second floors, and they will pass along onto the third belt and be delivered by it to the second floor of the cloth hall, where goods will be assorted and piled away for the finishing processes.

The motors for operating these three belts will be controlled by remote control switches so that they can be started or stopped from either floor of either mill, and when the belt from the new mill is running that from No. 3 cannot be run, and vice versa.

In all four systems, every opening through the floors is protected by automatic fire cut-off. Safety appliances are included with each separate system to protect same in case anything goes wrong. The vertical lift elevators have safety appliances at all loading or unloading points so that if a box gets stuck in any manner the elevator will stop.

STEEL SKELETON FOR MUSHROOM TYPE CONCRETE CONSTRUCTION

All systems are as automatic as possible and all boxes will go to the place intended with the exception of the empty roving boxes. A switch will have to be thrown from time to time in order to have these delivered evenly to the two card room floors.

CARRIER'S NOT TAKEN

If a carrier is not taken from the conveyor on system No. 1 it will simply continue to go the rounds without further attention. From No. 2 the boxes will pass to the end of belts at the east and west ends, stop and the belt will continue by sliding under them. From No. 3 to spoolers the boxes will collect on the horizontal gravity at the east end of the mill, and the filling would continue around the full length of the system and be returned to the third floor on the gravity near the bobbin cleaners. On No. 4, of course, they simply drop off onto the floor and remain there.

Use of Gravity

Gravity has been made use of as far as possible in transferring the stock. On long runs, however, where it is necessary to take off and put on at any point, it is necessary to use a horizontal apparatus and therefore a belt is put in. The amount of electric power required it is believed is cut down to the minimum, being less than 40 H. P.

While the mill is running, all motors except those on No. 4 conveyor will be running continuously. No. 4 will run only when cloth is being sent across to cloth room.

Equipment of New Mill

The new mill will be filled with equipment, partly that taken from old structures, and partly new machinery. All of the warp spinning will be new, and about two-thirds of the cards will be new, Saco-Lowell make. The filling spinning will be rebuilt old equipment. Drawing frames are about fifty per cent. new; balance will be the old equipment moved from other mills. All of the roving frames will be new Saco-Lowell machines, while only one or two of the slubbers will be bought for this addition.

The illumination throughout the plant will be of the local type, supplemented with the pilot light system for independent illumination in emergencies, and for night service. Current will be taken from the New England Power Co. lines which run by the mill. The extensive type of enameled steel reflector is used on all lights of the Ivanhoe type.

The power is distributed at the mill from a sub-station which delivers current at 600 volts, 3 phase, 60 cycle to three transformers at the mill which step it down to 220 volts for operating the ½ H.P. loom motors. All other motors are driven by 550 volt current. Spinning equipment is driven by both group and individual motors. The latter are applied in 7½ H.P. units to new equipment, while the rebuilt equipment is driven in group drives of four frames each. All electrical drives are with General Electric motors.

Heating and Cooling Systems

The entire mill will be heated, cooled and humidified from a central automatic plant, so that the atmospheric conditions inside the mill will be nearly perfect, and in the hot summer the mill will be cool and comfortable at all times. This will make it a particularly healthful and pleasant place for the operatives, and should stimulate them to greater efforts.

This is undoubtedly one of the most interesting cotton mills which has ever been erected. The design, layout and construction are decidedly different from any other cotton mill in the United States, and it will be watched with great interest by the whole industry.

Holeproof Hosiery Co. of Canada

Many Features of Interest in New Mill at London, Ontario

EARLY in 1919, the Holeproof Hosiery Company of Canada, Ltd., London, Ont., decided to construct an entirely new plant to handle their rapidly growing business which had up to this time been located in a number of leased buildings.

The services of Lockwood, Greene & Co., engineers, Chicago office, were secured to handle the design and supervision of construction, and they had associated with them H. P. Elliott, consulting engineer of London, Ont., representing them on the ground and in the supervision of construction of this work.

A building site was secured in the center of the city directly across the street from and facing the site for the new Union Station, thus making this building one which occupies a very prominent position in the city. For this reason it was desired to have the most attractive building from an architectural standpoint.

After a considerable discussion as to the relative merits of locating power plant and dye house in separate buildings, a decision was reached that from all viewpoints it would be far more desirable to have a single building combin-

ing all necessary features in this one building, rather than to have a number of scattered buildings on the ground.

Dyeing Department on Top Floor

Following this decision it was arranged to locate the boiler room in the basement and sub-basement, and to locate the dye house in the top story. The building was designed to be of fireproof construction, with face brick and cut stone trim, and to have an ornamental clock tower as indicated by the accompanying illustration. This tower contains the sprinkler tank for fire protection, and at a lower level service tanks for both hot and cold water for supplying the dye house.

The approximate arrangement of departments in the plant is as follows:

BASEMENT:
Boiler room, water softening outfit, and miscellaneous storage.

FIRST STORY:
Offices, hospital, sample rooms, finished goods storage, packing and shipping department, receiving and supply departments.

SECOND STORY:
Looping, mating and inspecting, boxing, lunch room, and kitchen.

THIRD FLOOR:
Knitting.

FOURTH FLOOR:
Undyed stock room, drug room and laboratory, dye house, and boarding room.

A dumb waiter runs from the boarding room on the fourth floor to the mating and inspecting room on the second floor and stockings will be handled up and down on this dumb waiter on boards. From the boxing department on the second floor a gravity chute extends to the finished goods storage in the first story which communicates directly with the receiving and shipping platform.

NEW PLANT OF HOLEPROOF HOSIERY CO. OF CANADA, LTD., AT LONDON, ONTARIO, ARRANGED FOR EXTENSIONS, ALSO ADDITIONS IN REAR

A side track adjoins the building and will be brought in the yard directly over coal storage pits located outside of and adjoining the boiler room. Boiler plant will be used for heating only, all power being purchased power from Niagara Falls, which is very cheap in London. A large electric sign will be placed on the roof of the building fronting directly towards the proposed new Union Station and towards the present Grand Trunk Station.

The size of the new building is 85 feet by 150 feet, and it is arranged for an extension of at least twice its present size, with space in the rear for an additional unit. The particular features of interest about this plant are the unusual character of the design and the materials of construction used for exterior finish, and in this respect this building will compare favorably with many of the best office buildings of the country.

The arrangement of manufacturing processes is logical, compact, and efficient. The dye house location, while unusual, is perfectly feasible in a concrete building, and in this case it is provided with a complete supply system for fresh warm air and an entirely separate exhaust system for removing vapor and fumes from the room.

Contractors for this building are Stone & Webster, and at the present writing the construction is substantially completed, with the probability that same will be occupied and in use for the manufacture of hosiery early in the Spring of this year.

Cleveland Worsted Mills Co. Enlargements

New Mills and Additions at Cleveland, Ravenna and Camden

EXTENSIVE enlargements were included in the program of the Cleveland Worsted Mills Company during past year, and comprise the adding of 26,000 square feet of floor space at the Salisbury Worsted Mill, Camden, N. J.; the building of an additional story on the Redfern Mills at Ravenna, Ohio; the doubling of the capacity of the Annevar Dyeing and Finishing Works at Ravenna; and the erection of a new ten-story mill building at Cleveland. When fully equipped and in use these enlargements will give a substantial increase to the already enormous output of the concern.

Perhaps the large extension to the Annevar Dyeing and Finishing Works is the development of most interest. The new building, which is shown under construction in the accompanying illustration, is attached to the present dyehouse and will double the capacity, making it possible to dye one million yards of cloth per month. No effort is being spared to make it the most up-to-date dyehouse in the United States. The building is now entirely closed in and is expected to be in use by March 1.

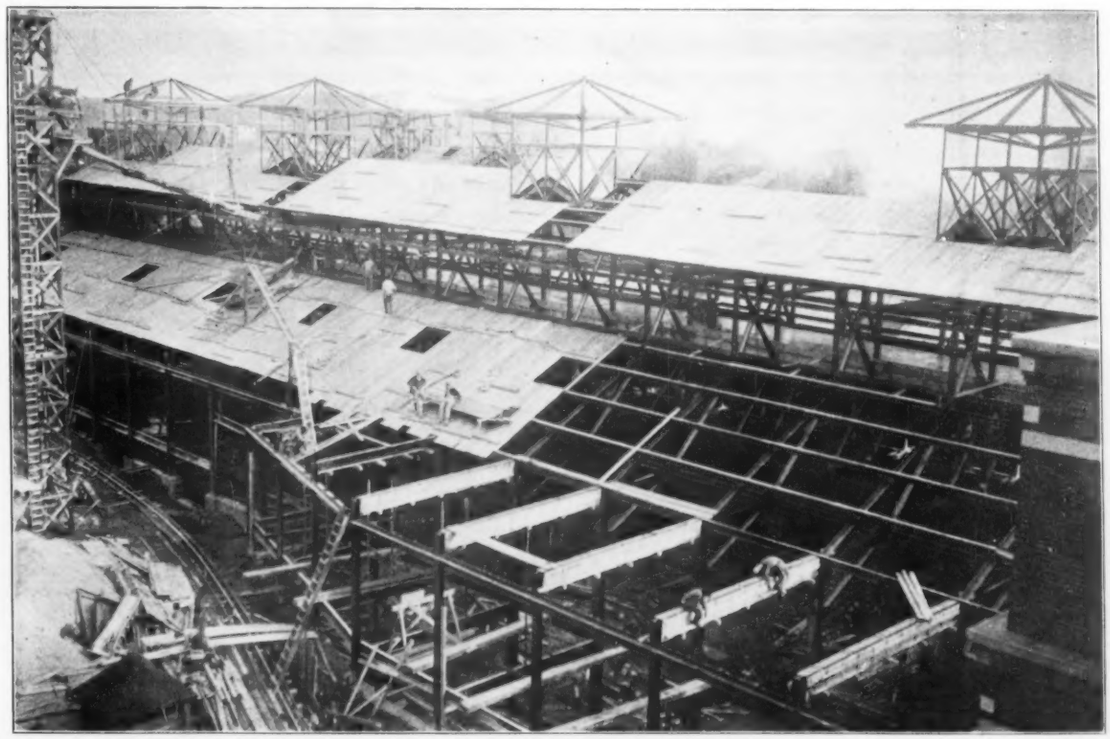
Whatever atmospheric conditions are present outside the system of ventilation installed will prevent steam in the dyehouse. There are no steam pipe lines, water pipe lines, overhead belts, etc., in the dyehouse proper as in the usual building erected for dyeing. Everything comes from below and all kettles are operated by individual motors. The plant includes a system of clarifying the liquor after it leaves the dye kettles, and means for recovering the soap and grease from the water that leaves the washers.

The water used at this plant is pumped from Lake Hodgson, a distance of about four miles, and is so chemically pure for dyeing and finishing textiles that no preparation or softening is necessary. This water supply, without doubt, accounts in large measure for the beautiful clean colors that are produced on the goods of the company, and which are well known in all markets where the products of the company's looms are sold.

Additions to Salisbury Mills

The additions to the Salisbury Mills at Camden, N. J., involved an unusual engineering feat, in that a building was raised about twelve feet in order to put a basement under it, while the spinning and twisting frames were maintained in operation all the time the alterations were going on. It is believed to be the first time that worsted yarn manufacturing was carried on during the work of elevating a building. The difficult character of the problem can be better appreciated when the length of spinning frames is recalled, as well as the delicate adjustment required for their successful operation. The work was in charge of Day and Zimmerman, Inc., architects and engineers, of Philadelphia.

The complete enlargement at the Salisbury Mills comprises an addition of



EXTENSION AT ANNEVAR DYEING AND FINISHING WORKS WHICH WILL MAKE IT POSSIBLE TO DYE 1,000,000 YARDS OF CLOTH A MONTH

ABERTHAW CONSTRUCTION COMPANY

CONTRACTING ENGINEERS

BOSTON MASSACHUSETTS

ATLANTA BUFFALO PHILADELPHIA

FROM THE GROUND UP

WHEN ABERTHAW began engineering construction, twenty-five years ago, its officers were their own superintendents.

¶ With tireless insistence upon sound technique, they worked side by side with their laborers, often using the same tools, intent always upon the correct solution of each new problem.

¶ When, in due time, recognition brought monumental opportunity, ABERTHAW could offer an experience developed literally from the ground up.

¶ Not the least valuable aspect of this was the mutual confidence and respect established between masters and men—between those who plan and those who, however humbly, fulfill. Today, although ABERTHAW employees number hundreds as against the tens of earlier years, the old spirit obtains.

¶ Ask one of these men what he thinks of the Company and its work. His answer will show that to him *Built by Aberthaw* constitutes the measure by which all building performance is to be judged.

ABERTHAW CONSTRUCTION COMPANY

CONTRACTING ENGINEERS

BOSTON MASSACHUSETTS

ATLANTA PHILADELPHIA BUFFALO

26,246 square feet of floor space. The new manufacturing building is of "L" shape in plan, 50 feet wide by 130 feet long, two stories and basement; of slow burning construction. There is also an adjacent heating plant building measuring 24 feet by 32 feet.

The "L" shape building connects to the older mill building, and likewise joins a building which was acquired by the Cleveland Worsted Mills Company recently. This building had two floors but no basement. The lower floor was of cement and both floors were 5 feet 8 inches lower than the floors in the company's present building.

It was thought best to join both present buildings with a connecting wing, and to raise the recently purchased building to a new floor level matching the present layout and providing same with a basement. To bring the floors to a uniform level, it was necessary to raise the building 5 feet 8 inches, placing new foundation and excavating for the basement.

It was necessary to raise the building on an absolutely level plane. Great care was exercised in obtaining a solid footing for the cribbing, both outside the building as well as in the newly excavated basement. The cribbing and longitudinal members were placed so that there would be no interference with the erection of the new interior columns and girders forming the new first floor and basement; likewise, sufficient space was allowed around all walls for the bricklayers to build the new underpinning walls. Special wedge brick was burnt in order to obtain first-class underpinning.

FOUNDATION READY FOR BRICKLAYING AT THE SALISBURY MILLS

The force required in the actual raising never exceeded six men, and after the staging and jacks were in place, the lifting proceeded, requiring four men working in unison across the width of the building and moving lengthwise of the building as they screwed the jacks one-quarter turn, which made the rise ⅛ inch with each travel of the screw. Measurements were taken at several designated and fixed points about the building with each ⅛ inch rise. With this careful procedure in the raising of the building, they were able to lift same 8 inches, the limit of the jacks, in six hours. However, it required a full day to build up the cribbing and reset the jacks for another lift. The building was completely underpinned three days after same had been jacked up to its final level.

When the enlarged Salisbury Mills are fully equipped with machinery, which has been ordered from the Saco-Lowell Shops, they will have an increased capacity of 150 per cent. It is expected that the new equipment will shortly all be installed and in operation.

Additional Story on Redfern Mills

At the Redfern Mills in Ravenna, Ohio, another story has been added to one of the buildings, and this new manufacturing space is to receive two thousand worsted spinning spindles with preparatory machinery. The new equipment has been ordered from English manufacturers. This enlargement has been completed, and the machinery would have been in place to-day and in operation, but was delayed in delivery on account of the moulders' strike in England.

10-Story Mill at Cleveland

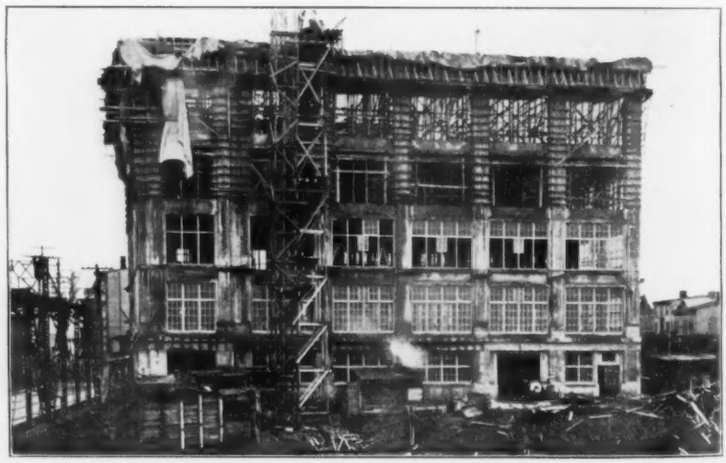
At Cleveland, where the concern's largest mills are located, they are just completing a ten-story building, of steel and concrete construction, which is to be used for additional storage and to increase the carding and combing capacity. It is the intention of the management to put in a clock tower on this new building a large clock, the dial of which will be about sixteen feet in diameter. On a clear day this will be visible for a distance of many miles.

Many Large New Silk Mills

For Throwing, Winding and Weaving Broad Silks and Ribbons

WHEN the next census of manufactures is compiled it will show a wonderful growth in many textile lines, but perhaps the figures indicating the expansion in silk manufacturing will be as remarkable as those for any other industry. The illustrations on this page show a few of the important new mills under construction during 1919, for which John W. Ferguson Co., Paterson and New York City, are the contractors.

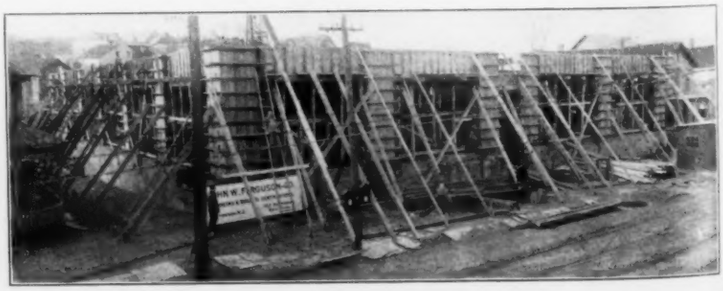
MIESCH MFG. CO., RITTERSVILLE, PA.



GENERAL SILK IMPORTING CO., PASSAIC, N. J.

For Schwarzenbach, Huber Co., at Blairsville, Pa., a one-story brick factory building was erected with steel skeleton. This measures 100 x 400 feet. This is a new plant of this concern, which has establishments scattered over four states. Another building for the Schwarzenbach, Huber Co., at Covington, Va., illustrated by photograph, is practically a duplicate of the one above, and shows practically the same features.

SCHWARZENBACH, HUBER CO., COVINGTON, VA.



KLOTS SILK THROWING CO., CARBONDALE, PA.

J. A. MIGEL CO., NORTH BERGEN, N. J.

For the Klots Silk Throwing Company, three buildings were put up in three different cities in three different states. A two-story and basement silk throwing mill at Lonaconing, Md., is built with brick walls and mill construction interior. This measures 86 x 85 feet. At Keyser, W. Va., a two-story brick factory building with basement was erected, measuring 73 x 104 feet. A larger building at Carbondale, Pa., two stories and basement, 108 x 131 feet, is designed as a silk winding mill. This is of reinforced concrete, flat slab construction, trimmed with brick veneer and fitted with double glazed wood sash. The building measures 112 x 134 feet.

At Rittersville, Pa., a four-story building with partial basement has been put up for the Meisch Manufacturing Company, makers of silk ribbons, with headquarters at Paterson, N. J. The building is of brick and mill construction, and measures 65 x 124 feet. The small basement section, 21 x 32 feet, is simply for the boiler for heating the mill. The photographs show the new building nearing completion.

FOLLMER, CLOGG & CO., LANCASTER, PA.

struction, with a brick veneer finish. The windows are double glazed with wooden sash.

A two-story brick factory building with mill construction inside was built at Lancaster, Pa., for Follmer, Clogg & Co., makers of umbrella and parasol silks. This building is 152 x 197 feet.

A new four-story and basement weaving building for the General Silk Importing Co., is being erected at Passaic, N. J. The photograph shows the building with the structure almost complete and with sash in the lower floors. This is of reinforced concrete, flat slab construction, with a brick veneer finish. The windows are double glazed with wooden sash.

A silk weaving building has been built for J. A. Migel, Inc., at North Bergen, N. J., the headquarters of the company being at Paterson. This is for the manufacture of fancy broad silks. The building, which is shown in the photograph partly completed as it stood on December 10, was designed by Lockwood, Greene & Co. It measures 128 x 315 feet, with two stories and basement and is built of reinforced concrete on the flat slab system. There is a steel saw-tooth roof, where light is furnished through windows fitted with wooden sash.

INTERIOR VIEW OF NEW MILL OF FOLLMER, CLOGG & CO., SHOWING LIGHTING FROM SAWTOOTH ROOF

Thieme Brothers Co., Ft. Wayne, Indiana

Concrete Building for Manufacturing Full Fashioned Hosiery

CONSTRUCTION work was started early in the year on an extension to the already large plant of Thieme Brothers Co., at Fort Wayne, Ind., manufacturers of high grade full fashioned silk hosiery. The new building will be devoted entirely to the production of full fashioned hosiery and was built to form an extension to the present buildings, which will adjoin the new building in every floor.

The extension is approximately 90 x 150 feet in size, four stories and basement in height, and is of reinforced concrete throughout. Considerable study and attention has been given to the architectural design of the plant, with the result that the most attractive building has been produced and one which will be very different from any of the older buildings of the company.

The width of the new building being 90 feet, will provide in the best manner for the installation of two rows of full fashioned machines, with a good trucking alley down the center. Column spacing has been arranged to take care of this machinery with the most efficient use of the floor space. All welfare features are located in outside towers. This includes stairways, elevator towers, coat rooms and retiring rooms, shipping platforms, etc.

The building is constructed with concrete skeleton columns, beams and girders, and floor slab will be constructed of combination tile and concrete, with plastered ceilings. The finished floors will be of maple throughout.

At the present writing the construction work in this building is substantially completed and the installation of mechanical equipment is well under way, with the probability that building will be entirely completed and occupied early in the year 1920.

This work was designed by and construction carried out under the supervision of Lockwood, Greene & Co., engineers, Chicago office.

Construction at Everlastik, Inc.

New Mill at Chelsea, Mass., Includes Modern Power and Lighting Arrangements

THE Everlastik, Inc., Chelsea, Mass., has recently put into operation a new weaving mill located at the corner of Spencer and Webster Avenues. This mill is the result of the continuous growth and expansion of this company in the past few years.

The original plant, known as T. Martin & Bros., was founded in 1874 by Thomas and William Martin. It is said to be the first plant of any size to be used for the manufacture of elastic webbing. The original mill was located on Spencer Avenue just north of Webster Avenue, and when it was found necessary to have more room, three wooden frame buildings were erected just across Spencer Avenue and fronting on Dudley Street. These mills were driven by a small single cylinder Corliss engine belted to a line shaft running the entire length of the plant and supported between the several buildings on wooden trusses.

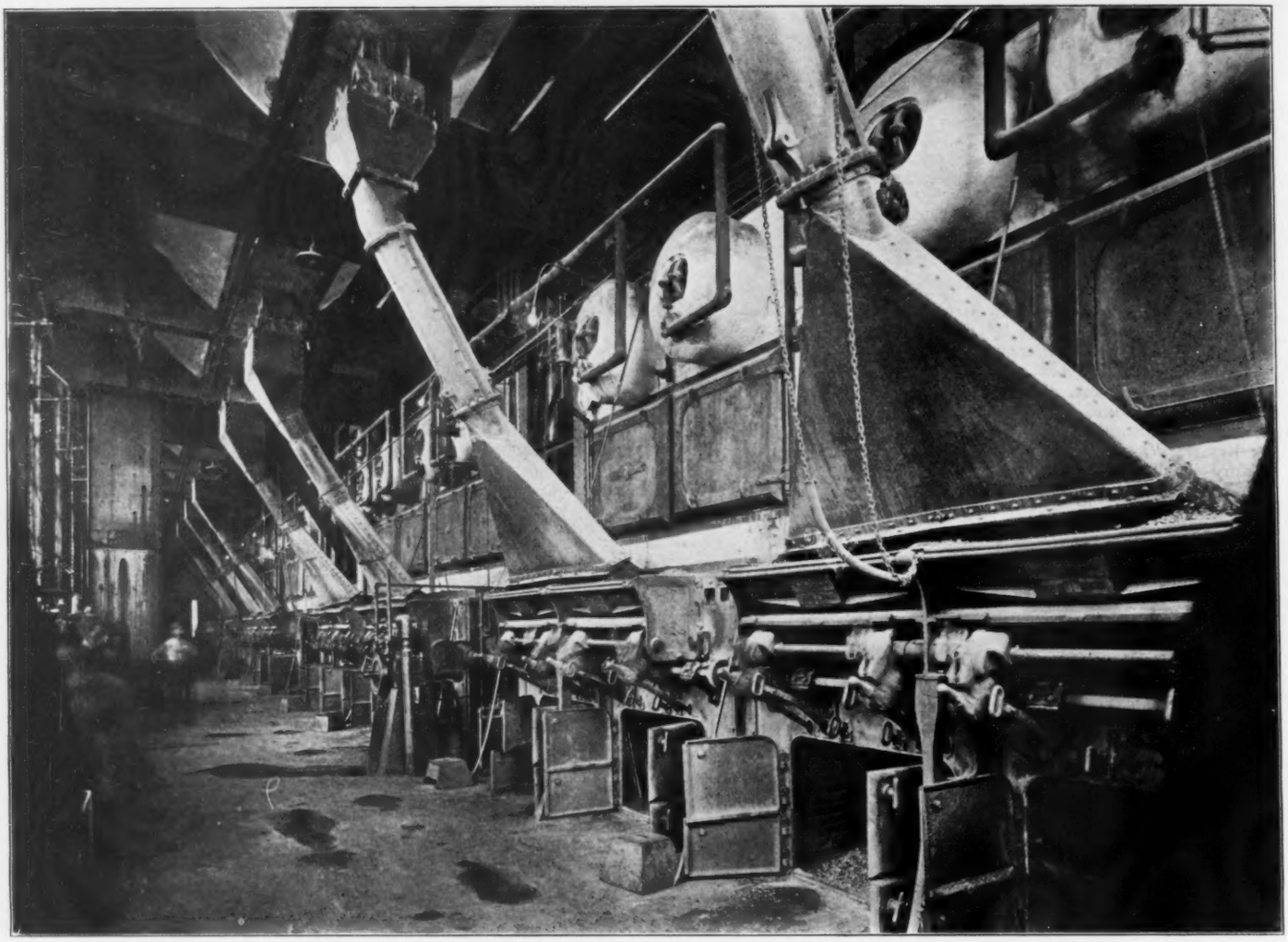
NEW MILL OF EVERLASTIK, INC., AT CHELSEA, MASS.

New Power Arrangements

At the time the construction of the new mill was considered, it was decided to do away with this method of driving the other mills. The engine house and one of the old mills have been removed and the two remaining mills are now each being driven by a 20-hp. motor. At some future time these mills, which are low studded and dark, will be replaced by a new mill similar to the mill recently put into operation.

The next addition to the plant was built in 1909 three stories high, of brick construction with wooden beams and floors. A 20-hp. Allis-Chalmers motor is suspended from the ceiling of each of the floors and operates the 21 looms on each of the first and second floors and the winding and warping machines on the third floor.

The new building known as the "Victory Mill" is a three-story structure, 200 ft. long by 60 ft. wide, and is of the most modern type of mill construction with a window area of approximately 50 per cent. of the area of the exterior walls. The exterior appearance is very attractive, due to more care having been given to the architectural features, than is usually the case



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We have had 36 years' experience in the engineering study of power problems and the design and construction of power plants of all kinds. We have served a large number of satisfied clients. Can we now be of service to you?

WESTINGHOUSE, CHURCH, KERR & CO., Inc., *Engineers and Constructors*

37 WALL STREET, NEW YORK

PITTSBURGH **CHICAGO** **DALLAS** **SAN FRANCISCO** **MONTREAL** **LONDON**

W·C·K·

in factory buildings of this type. The walls are of face brick and the lintels, window sills, cornices, copings, etc., are of cast stone.

Individual Electric Motor Drives

In view of the detail given to the general construction of the building, it is not surprising to know that the equipment is as complete and up-to-date as can be found in the textile mills today. Individual electric motor drive is used for practically every piece of machinery, which not only conserves the use of electricity but presents a much neater appearance to the visitor, and due to the elimination of overhead shafting and long vertical belting makes the building much more pleasant for the operatives.

HEAVY 24-SHUTTLE WEBBING LOOMS IN NEW MILL OF EVERLASTIK, INC., AT CHELSEA, MASS.

The first and second floors contain a total of fifty-two twenty-four shuttle extra heavy Crompton and Knowles looms. Each loom is operated by a 1½ hp. G. E. type KT induction motor made for textile machinery and controlled by a G. E. 3 phase, heavy duty snap switch with cast iron cover mounted on a Crouse Hinds condulet which contains the proper fuses. All the wiring is done in conduit making a very neat, up-to-date and safe installation.

On the third floor are the warping machines and Foster winding machines. Each warping machine is operated by ¼ hp. motor and controlled by G. E. 3 phase snap switch mounted on Crouse Hinds Type ZGC condulet supplied with a pedestal making the entire control self-supporting from the floor. The Foster winding machines are each operated by a 3 hp. motor but as these winding machines are controlled by means of a shipper rod running the entire length of the machine, it was necessary to install some sort of control switch that would lend itself readily to this arrangement. The G. E. Type P 3 quick make and quick break oil switch answered the requirements and was mounted directly over the motor, with the operating handle attached to the shipper rod. This switch was protected by a G. E. Type C. R.—1920 time limit fuse cutout which made a very complete and satisfactory arrangement.

Finishing Machines from Old Mill

The finishing machines were moved from one of the old mills and changed from belt to individual motor drive. Back geared slip ring type motors were required for this drive as these machines operate at a very slow speed, and Cutler-Hammer No. 9320 controllers were used to obtain the necessary variation in speed. Trumbull safety type knife switches were installed to disconnect the motors from the line and were furnished double throw to allow the drying rolls to be reversed in case of accident.

As it was found very difficult to obtain the necessary attachments required to change the machines in the machine shop from belt to individual motor drive, the complete shop was driven by a 10 H. P. motor with the necessary shafting.

Lighting Arrangements

As the new mill was particularly well lighted in the daytime, the lighting layout was carefully planned so that the mill would also be well lighted during the time it is necessary to use artificial light. Seventy-five, one hundred and two hundred watt Type C lamps in the proper Benjamin enameled steel reflectors were used throughout the plant, with the exception of the offices, and an average intensity of approximately 5 foot candles was obtained. In the offices the "Four-in-One" lighting units were installed. These units give a good distribution of light and being totally enclosed require a minimum amount of cleaning.

Purchase Electric Power

As the electrical power load of the plant was greatly increased, the small D. C. generator which had originally supplied this power was abandoned and all power purchased from the Edison Electric Illuminating Company of Boston. The Edison line enters the property at 4,000 volts, 3 phase, 4 wire, and the necessary transformer to obtain 220 volts for the secondary distribution is mounted on a suitable platform just outside of the boiler house. The Edison meters and main control switches are located in the boiler house and are under the supervision of the engineer at all times. The 110 volts for lighting were obtained by transformers so located and connected that the entire plant is well balanced on the three phases.

The power distribution panels are of the standard slate panel with copper busses and fuses enclosed in a steel cabinet. These cabinets are kept locked at all times and only the authorized person has a key. As the lighting panels were accessible to any of the operatives, it was decided to make these panels of the safety type and Bryant & Perkins No. 2,700 panel switches were used. These switches make a very fine, moderate price safety panel, there being no live parts exposed whereby one might receive a shock when operating a switch. Practically all the switching is done in these cabinets and all wiring inside the building is in iron conduit. The complete installation is as safe and fool proof as was possible under the conditions.

The total area of the building is approximately 47,000 sq. ft. The connected lighting load is 24 K. W. and the connected power load 115 hp.

Monks & Johnson, 99 Chauncy street, Boston, Mass., were the architects and engineers. Geo. W. Harvey Company was the general contractor, and the M. B. Foster Company, the electrical contractor.

Marlboro Cotton Mills' Mercerizing Mill

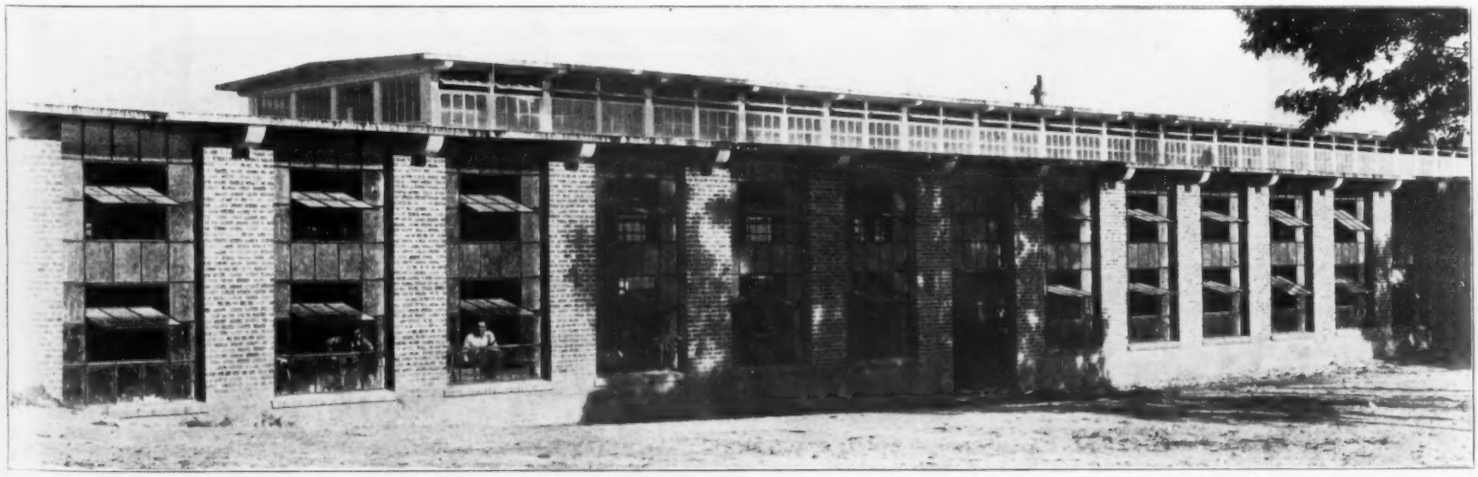
Refrigerating Plant Furnishes Ice to Employes at Small Cost

DURING the year, a new cotton mercerizing plant was completed and put into operation at the Marlboro Cotton Mills, McColl, S. C., as an addition to their lines of combed and carded yarns, and combed and carded tire fabrics. The counts specialized on are 40s to 60s, 2-ply, but they process from 30s to 100s, 2-ply. The mercerized product is wholly for the knitting trade.

The new building is of brick and reinforced concrete standard mill construction, with Barrett specification roof. It is lighted by large Fenestra steel sash windows and also by a monitor running the entire length of the building, as shown in the accompanying illustration. The monitor is equipped with steel sash operated chain pull operated from below.

The interior of the building is plastered with cement and painted white, except from the bottom of the windows to the floor, which is a dark green.

The building has a frontage of 103 feet, is 180 feet long and is 15 feet to the ceiling. The central part of building, 62x180 feet, is divided into the mercerizing room on the left, 20 feet wide running the full length of the building. The other side is divided into three rooms, 40x60 feet each. These are used for the warp splitting room, winder



MARLBORO COTTON MILLS, MC'COLL, S. C., NEW YARN MERCERIZING PLANT

NEW YORK CENTRAL & HUDSON RIVER R. R.
POWER HOUSE, PORT MORRIS, NEW YORK CITY

RESERVE KNOWLEDGE

You who read this doubtless have many days of routine work which could be handled just as efficiently by a subordinate.

But there are other days, days fraught with grave difficulties, which you must draw upon your reserve knowledge to solve.

There will be some of the same sort of days during the progress of your proposed plant extension, and that is when you will appreciate the fund of building and engineering knowledge which this organization has in reserve.

And even if that reserve is never called on, it is worth far more than money to the Owner to know that it is There!

Our Advice is as Good as Our Service

THOMPSON-STARRETT COMPANY

INDUSTRIAL CONSTRUCTION

NEW YORK

CHICAGO DETROIT PITTSBURGH

room and packing room. The right wing, 25x62 feet, contains the singeing room, while that on the left, 16x62 feet, is divided into caustic storage room at the front and refrigerating room at the rear, with a caustic mixing room upstairs that is reached by a circular iron stairway.

These wings are separated from the main building by automatic sliding fire doors and have large rotary Swartout ventilators through the roof, giving perfect ventilation. The building is equipped with Globe automatic sprinklers and Warren & Webster system of steam heating.

The mercerizing room is equipped with the most up-to-date Butterworth machinery, and embraces all improvements gained from their many years of experience in building this type of machines. A large uniform production is obtained with the minimum expense for labor and materials.

Notable Features

The features which stand out prominently are first, the double boiling box equipped with the reel system which assures a clean open boil where the liquor can get to all parts of the yarn. Another feature is the special automatic tension control between the cooling and caustic box, which insures a perfect control of the contraction or stretch of the yarn, thus avoiding what is known to the trade as "hungry yarn." Every knitter will fully appreciate this feature inasmuch as the yarn known as "hungry yarn" always has a tendency to break in the thin places, while in the knitting process.

The refrigerating system is another feature which assures the caustic remaining at a fixed temperature; hence a fixed twaddle. Another feature is that the refrigerating plant is of such capacity as to furnish every employe of the Marlboro Cotton Mills with ice at a very small cost.

With the system of circulation used in the mercerizing machine, the caustic is never still in the caustic tank, but is continually changing from caustic tank to storage tank, which assures their being able to hold the twaddle at any desired strength. Also the various washes after the caustic emersion are so arranged that they may use hot or cold washes as desired.

One of the best features of the equipment is the arrangement by which they have a continuous operation in mercerizing and drying from the time yarns are taken from the warp ball until they are mercerized, washed and dried. It is not necessary to reverse ends. Everyone knows that it is highly desirable in mercerizing yarn to avoid reversing ends, as the action of reversing has a tendency to raise the nap on the thread, which is very objectionable, especially in gassed yarn.

Their whole equipment is the most up-to-date that has been built up to this time, both for the handling of excellent work and for the amount of work accomplished in one range. The warp splitting, quilling and finishing departments, as well as the singeing department are fitted with the very latest machinery made, and each department has up-to-date lavatories, and drinking fountains. Particular attention has been given to all conveniences making for the comfort of operatives, and the lavatory and washroom fittings are the best that could be secured.

Activity in Southern Mill Village Development

Year of Greatest Development in This Work Ever Recorded

By *E. S. Draper**

THERE is a very general and widespread interest in anything of an improvement nature relating to both mills and villages in Southern textile industries. For the past several years the extent of village improvements has greatly increased, and the year 1919 has seen the greatest activity in such work that has ever been recorded. The elimination of war-time restrictions on nonessential activities, and the release of materials, labor, etc., was taken advantage of immediately after the signing of the armistice. So that the majority of Southern mills were able to start their improvement work during the spring of 1919, and at a time when the balance of the country was awakening rather slowly to the fact that the logical time for prosecuting such improvements had arrived.

Almost all the Southern mills have made some betterments, but this article is concerned only with the improvements to the villages and does not attempt to discuss the planning or building of new mills. The practice of installing better sanitary equipment, sewer and water systems, septic tanks, etc., has been so universal that no attempt will be made even to enumerate the number of mills that have improved their property in this manner. The length of this summary will hardly more than allow of enumeration and brief mention of the mills which have had their mill village improvements of a landscape nature planned, advised, or supervised by the writer, and the mills which are taken up in the following summary have been governed in their improvements by the plans of the writer.

While it is too early to definitely state that village improvement has had a strong effect in combating Bolshevism and minimizing the serious labor difficulties which have attended industrial development in other sections of the country, it is only fair to state that in the opinion of some of the best informed mill men in the South the general improvement work has been a not inconsiderable factor in reducing the labor unrest to the minimum. Although the statement is perhaps not universally true, and the writer wishes to be very conservative in speaking of such activities, yet the mills which have done the most in the way of village improvement and in improving the working conditions of their employes have apparently suffered the least from the effects of social unrest which has here and there interfered with the normal relationship of industries with their workers. Although there may be a few exceptions to this statement, the exception in this case proves the rule.

In discussing the improvement work which has been undertaken in the South during the year 1919, we will classify projects under the headings of "Old Mill Village Improvements," relating to improvements to existing villages, and "New Mill Village Developments" with reference to plants which are building new villages and creating industrial towns.

Old Mill Village Improvements

Compared with previous years, the number of improvements to existing villages has greatly increased, due to the fact that the value of existing houses and other features of the villages has gone up to such an extent with the increased cost of erection that it has been found extremely profitable to spend the requisite sum of money to build up the improvements that are existent.

Another point that has been brought out in work of this sort is the necessity for utilizing all of the area within the village limits which can be practically used for village purposes. When it is considered that street improvements, piping, etc., occupy relatively the same area and length in lineal feet in a village which is built up with only fifty houses as in a village that is built up of double the number in the same area, and at very nearly the same cost, it is easy for the reader to understand that it is to the advantage of the mill to intensify its development, insofar as it is possible without congestion of the village and its facilities. This fact has been a governing factor in improvements which have consisted in the moving of houses, and grading of sites for houses previously considered disadvantageous for such purposes.

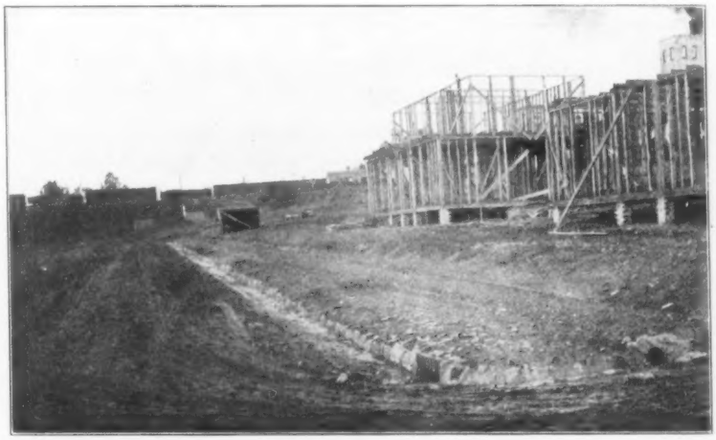
* Landscape Architect and City Planner, Charlotte, N. C., and New York City.

The Erlanger Mills at Lexington, N. C., have carried on their good work of village improvement, consisting of the building of retaining walls, community buildings, including a community dairy and barn, and general improvements to the village. They have at the present time one of the most attractive and the best kept Southern cotton mill villages.

Pacolet Manufacturing Company at Trough, S. C., has been concerned with the improvement of details in the village, inasmuch as their village has been completed for several years. The improvement of hotel grounds, park spaces, playgrounds, and planting and beautification of these and other spaces have been occupying attention in the village.

The Dixie Cotton Mills of La Grange, Georgia, have built an attractive group of overseers' homes, with grounds to be

STREET AND YARD IMPROVEMENTS UNDER WAY AT CAMPERDOWN MILLS, GREENVILLE, S. C.



STREET IMPROVEMENTS AT FLORENCE MFG. CO., TOP SOIL ROADS, STONE CURB AND GUTTER, PARKING STRIP FOR TREE PLANTING AND CINDER WALKS

The Green Single Profit Plan of Building Construction

The Allies won the war by concentrating their forces under one supreme command.

The lesson can be applied to the erection of a Textile Mill. Here, too, there is *one aim*—the creation of a manufacturing unit of the greatest possible productivity. The task should be entrusted to *one* organization.

Under the Green Single-Profit-Plan the various factors of practical yet artistic design, durable construction and up-to-date equipment are COORDINATED.

The well known Organizations listed below have had experience with the service rendered by the Green Company either in the design of buildings alone, or in the design and construction under the Green Single-Profit-Plan.

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Eaton, Crane & Pike Co., Pittsfield, Mass.
Sawyer Regan & Co., Dalton, Mass.
Container Realty Co., West Springfield, Mass.
Ajax Rubber Company, Trenton, N. J.
Florence Mfg. Co., Florence, Mass.
Belding Bros. & Co., Rockville, Conn.
Belding Bros. & Co., Northampton, Mass.
Belding Bros. & Co., Belding, Mich.
Jos. Loth & Co., Norwalk, Conn.
Muller Gloria Mills, Norwalk, Conn.
Nonotuck Silk Co., Leeds, Mass.
Nonotuck Silk Co., Florence, Mass.
S. N. & C. Russell Mfg. Co., Pittsfield, Mass.
American Thread Co., Fall River, Mass.
Dresden Lace Works, Norwalk, Conn.
Susquehanna Silk Mills, Sunbury, Pa.
Max Pollack & Co., Willimantic, Conn.
Jos. Bancroft & Sons Co., Wilmington, Del.
Alb. & E. Henkels, Bridgeport, Conn.

nicely developed on completion of the houses and park developments to follow. Leila Ross Wilburn, Architect, of Atlanta, Georgia, is the archtiect of the bungalows.

The Florence Manufacturing Company at Forest City, N. C., have undertaken and successfully completed the general improvement of the village, including building of new houses, development of a large central parkway with swimming pool, sewer and water installation, street sidewalks, gutter and storm drainage improvements. While the houses have not as yet been completed, the general village landscape work was satisfactorily carried out. Mr. McGoodwin, Philadelphia, is architect of the houses.

The Laurens Cotton Mills, of Laurens, S. C., have been reworking their entire village with the building of new houses on new streets after a carefully studied plan to bring the village into better relation with the mill. Scarcity of labor and materials have somewhat impeded the progress of this work. J. E. Sirrine, of Greenville, S. C., is the designer of the sewer, water and lighting systems, and J. Frank Collins, of Spartanburg, S. C., is architect of the houses.

asphalt (Finley method), and new concrete sidewalks, curbs and gutters will be laid. The storm water problem in the village is being taken care of in a properly designed storm drainage system, while the existing parks are being improved and additional planting for the beautification of the village will be carried out. All this work is under contract and with the exceptions as mentioned is planned and supervised by the writer.

The Wymojo Yarn Mills, of Rock Hill, S. C., have undertaken to grade and improve their streets by planting of trees, planting about the mill and development of the village park. This mill village is being improved as fast as conditions will permit.

Springfield Cotton Mills, of Laurel Hill, S. C., in connection with the building of their new mill to replace the one burned several years ago, will remodel all the village houses, install sewer, water and lighting systems and other features to make a model mill village. The entire work is under the planning and supervision of the writer.

Attractive Dormitory Group

At Loray Mills, Gastonia, N. C., additional village houses to meet the requirements of the mill are being constructed. Two dormitories for girls and men, and a cafeteria, when completed will be one of the most attractive dormitory groups built in the South. Architectural work by Robert & Company, of Atlanta, Ga.; E. H. Clement & Company, of Charlotte, N. C., general contractors. Plans for extensive planting and beautification are being considered for the future.

The Hamilton Carhartt Cotton Mill interests are starting considerable expansion of their mill village at Carhartt, S. C., for Mill No. 2, and are building new houses, a school house and store after plans of N. G. Walker, architect, Rock Hill, S. C. Other improvements of a general village nature are being taken up.

houses in their village and improve their streets. Robert & Company, of Atlanta, Ga., architect of the houses.

The Cherry Cotton Mills, of Florence, Ala., are considering a program of general village improvement.

DEVELOPMENT OF PARKWAY, PARKSIDE ROADS AND ATTRACTIVE HOUSES AT FLORENCE MFG. CO., FOREST CITY, N. C.

GRADING HOUSE SITES AND STREETS WITH PROPER REGARD FOR TREES AT BIBB MFG. CO., COLUMBUS, GA.

The Spartan Mills at Spartanburg, S. C., are undertaking village improvements by improving certain blocks in the city with the erection of new houses.

The American Textile Company, at Atco, Bartow County, Ga., when the plans are carried out, will have one of the finest villages in the South. A sewer system is being installed for the entire village from the plans of Mr. Gray, of Providence, and electric lighting for the whole village is being laid. The old macadam streets will be resurfaced with

The Camperdown Mills, of Greenville, S. C., are conducting a well organized campaign to improve the streets and yards of their village, which lies in the heart of the city, by the building of concrete walks, walls, curbs and gutter, road grading and planting of trees and shrubs.

The High Shoals Cotton Mills, at High Shoals, S. C., are steadily improving their village by the construction of concrete walks, retaining walls and planting improvements.

The Wear Well Sheeting Mill, at Draper, N. C., are improving their streets.

The Thomaston Cotton Mills, at Thomaston, Ga., will build additional

The following mills are carrying on considerable improvement work in the planting of trees, shrubs and vines:

Adrian Cotton Mills, Mount Holly, N. C., grounds about the mill.

Efird Manufacturing Company, at Albermarle, N. C., mill grounds, school grounds and parks.

Albermarle Cotton Mills, at Albermarle, S. C., general village planting and park development.

Carolina Cotton and Woolen Mills, Fieldale Unit, Fieldale, Va., planting of grounds about Fieldale Lodge.

Caswell Cotton Mills, at Kinston, N. C., and Wiscasset Mills, at Albermarle, S. C., are continuing extensive planting programs undertaken in 1918.

New Mill Village Developments

Under this heading it is proper to take up all mills which are building entirely new mill villages, and in which the opportunity of designing the village is not handicapped by any existing conditions to which it is necessary to relate the streets and other village features. In such developments, the chance for the initial design of a well-ordered, practical and artistic village is usually greater than in reworking an old village. The majority of mill men to-day consider the initial design of their village as an important feature. The fact that so many old mill men who are building new mills turn to this feature of the work almost immediately when they consider the erection of a new mill would indicate the practical value of such work. In many cases the location of the mill can be slightly changed to the great advantage of the village when the mill and village development are started together.

The Richmond Cotton Mills at Laurel Hill, N. C., have undertaken the building of a new village, attractively situated in the woods and to be built of modern bungalows.

The Bibb Manufacturing Company are building over a hundred houses in their North Village development, which, while extremely rugged and involving considerable grading for roads and house sites, will be one of the most picturesque mill villages in the South. It has the benefit of beautiful trees, a natural stream and brook which has been made a feature of the park, and many other features which will make

PLANTING OF ONE YEAR'S GROWTH ON THE GROUNDS OF WISCASSET COTTON MILLS, ALBEMARLE, N. C.

BUILDING HOUSES ON SITE PROPERLY GRADED TO PREVENT WASHOUTS AT BIBB CITY, COLUMBUS, GA.

—illumination and production

Engineers Constructors

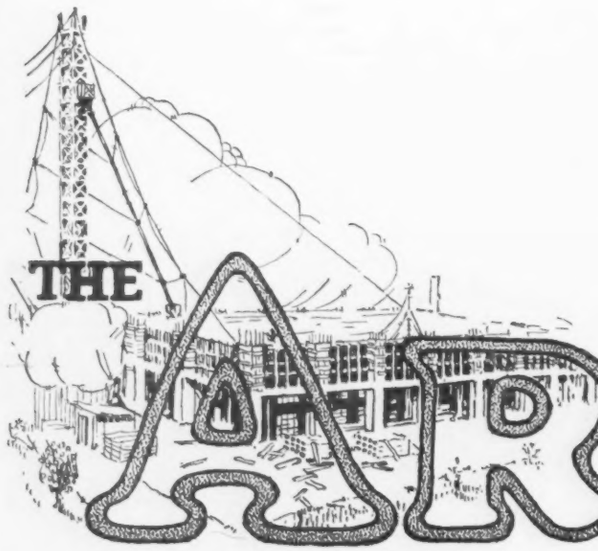
Electrical–Civil–Mechanical

ADEQUATE artificial illumination is essential for maxmium production.

Well conceived lighting not only makes possible the utilization of "dark spaces" which may have been before unavailable, but—if it supplants less modern illuminations—shows the result of improved working conditions in a sharp rise in production curves.

An appreciation of the value of excellent lighting was one of the reasons which led the Quaker Oats Company to engage the service of Arnold engineers to supervise the electrical equipment of their Peterboro, Ontario, plant shown above—a quarter of a century's experience made the accomplishment of the desired result *certain*.

A book that we have prepared, "ARNOLD ANSWERS TO INDUSTRIAL PROBLEMS," will give you an indication of the scope and success of past efforts, and is yours for the asking.



THE ARNOLD COMPANY

105 SOUTH LA SALLE STREET
CHICAGO – ILLINOIS

AN OLD TYPE MILL HOUSE REMODELLED AT HARTSVILLE COTTON MILLS, HARTSVILLE, S. C.

it of everlasting beauty. It is expected that this village will be one of the beauty spots of Columbus. In fact the land is included within the area which is traversed by a boulevard laid out some years ago. L. W. Robert and Company, Atlanta, Georgia, are architects of the houses and mill extension.

AN ATTRACTIVE BUNGALOW WITH STONE TRIM, SET IN THE WOODS AT WISCASSET COTTON MILLS, ALBEMARLE, N. C.

In Gastonia, N. C., most of the new mills have seen fit to have their villages surveyed, carefully designed and laid out, and these villages are now being built according to plans and along lines which will render them capable of the most practical development for sewer and water installation and other features, in addition to the beauty of the villages themselves. The Myers Mills, Victory and Winget Yarn Mills, Ruby Mills and Dixon Mills, which are all nearing competion, have villages of universally attractive design well suited to the topography.

The largest village development undertaken for a new mill in Georgia, that of the Peerless Cotton Mill at Thomaston, Georgia, has been worked out so that the village when completed will take advantage of every opportunity afforded by the natural site in the arrangement of the village houses, trees and community features. The mill itself is surrounded by park spaces and is reached by a very attractive approach. Robert and Company of Atlanta, Ga., are architects and engineers of the mill end of the houses.

BUILDING STONE AND CONCRETE GUTTERS ON STREETS OF FLORENCE MFG. CO., AT FOREST CITY, N. C.

The Rowan Cotton Mill Company of Salisbury, N. C., are building an unusually attractive village, which will tie in with the mill in an attractive manner through a boulevard on the axis of the mill leading direct to the community center.

The Carolina Cotton and Woolen Mills are undertaking in Carolina Heights a development of one hundred acres and a housing development which includes all the features of a complete community. It is significant that this company had not formerly attempted a housing development of their own, but are now undertaking this sub-division.

General Village Work

A number of mills, including the Trion Company, Trion, Georgia; the Dunston Company, La Grange, Georgia, and the Indian Head Mills of Alabama at Cordova, Alabama, which have had the opportunity for development and improvements for their villages presented through a complete report, are taking action on such improvements.

There are many mills planning future construction improvements to their villages which are now being planned and which will be carried out during the coming year. Included among these are the following:

Glenn Lowry Manufacturing Company at Whitmire, S. C., improvement of street sidewalks, storm drainage, parks and planting. (J. E. Sirrine, architect and engineer, of Greenville, S. C.)

Meritas Mills at Columbus, Georgia, planning of dormitory group. (Robert and Company, architects and engineers, of Atlanta, Georgia.)

Tuckaseegee Manufacturing Company, Mount Holly, N. C., general village improvement and extension.

Ware Shoals Manufacturing Company, Ware Shoals, S. C., planting of the village with trees and shrubs and civic center development including building of a handsome new schoolhouse. (J. E. Sirrine, architect and engineer, of Greenville, S. C.)

Cabarrus Cotton Mills at Kannapolis, N. C., village extension.

Cannon Manufacturing Company at Kannapolis, N. C., development of Cannon Park.

Manchester Mills at Manchester, Georgia, parkway development.

Granite Falls Manufacturing Company, Granite Falls, N. C., village extension.

Star Thread Mills at Athens, Georgia, and Fulton Cotton Mills at Athens, Georgia, village beautification.

The results from the village improvement work carried out in the South for the past several years have been so great that a visitor who had known the Southern villages during a period of five to ten years ago would hardly realize that such improvements could have possibly taken place during that length of time. It seems to be significant that practically every mill is undertaking improvements of one sort or another and that the spirit of improvement and of building up better communities is universal rather than confined to certain sections and states. There is, however, still left considerable improvement work to be done, and it is hoped that the example of the greater number of mills which have undertaken work of this nature will stimulate those which have been somewhat backward in carrying out desirable improvements to their villages.

La Porte Woolen Mills, La Porte, Indiana

Erecting Enlargements, Improving Conditions and Rearranging Manufacturing Conditions

EXTENSIONS to the plant of the La Porte Woolen Mills, owned by Samuel Fox's Sons, La Porte, Ind., were decided upon early in the year to provide increased production, and Lockwood, Greene & Co., engineers, of Boston and Chicago, were called in to study the situation.

Following the decisions, construction plans were prepared and work started on several extensions and changes, among the most important of these being an extension to the wool house, about 34 x 107 feet, three stories and basement in height, with inside stair tower and elevator; extension to main mill about 67 x 240 feet in size, three stories and basement in height; with one story wing about 20 x 180 feet in size.

Various changes and improvements were made in fire protection and in the lighting and heating of the entire plant, and the new construction involves the rearrangement of some of the present departments which will provide for moving most of the looms into the new mill.

The new buildings will be of the most modern type of slow burning mill construction, with windows of steel sash, and the design has been so arranged that the maximum amount of daylight is obtained, so that there will be a great improvement in light in the weaving department.

They are adding five sets of cards, 48 x 60; six mules, 300 spindles each; and thirty looms, which are to be driven by individual motors; one cloth washer; two fulling mills; wool scouring machine; one mechanical wool dryer machine; one rotary press; one 36-roll napper; one double cylinder shear. In addition the old looms are being changed over for individual motor drive. New power equipment includes two 500-kw. Kerr turbines, direct-connected to generator.

NEW DEVICES INSTALLED

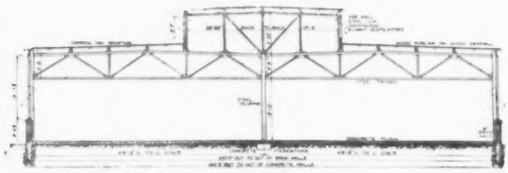
The heating and power plant are being installed under the direction of Neiler, Rich & Co., mechanical engineers. Drinking fountains are being installed throughout the entire plant, both old and new. Likewise the most modern fire prevention devices, as well as fireproof stair and elevator towers, are being included.

TO INCREASE PRODUCTION

These extensions will enable the Samuel Fox's Sons to increase their present large production of woolen goods for men's and women's wear. At the present writing construction work is substantially finished, and the installation of mechanical equipment and of machinery is going forward.

Austin Standard No. 4 Building

Cross section Austin No. 4 Standard. Size can be any number of bays 20 ft. x 30 ft.



Cross-section Austin No. 3 Standard, width 100 ft. Length any multiple of 20 ft.

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The Austin Company entered the new year with 66 *contracts under construction, some of which embrace over* 15 *buildings and include complete mechanical installations.*

These operations cover every important field of industry and represent this result: Austin specialization in design, building construction and equipment in each field. Several of these individual operations will cost over $1,000,000 each.

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AUSTIN

ENGINEERING-BUILDING-EQUIPMENT

American Woolen Co. Relieves House Shortage

Villages Being Built at Andover, Lawrence, Fitchburg and Maynard

By *Samuel Sayward*

ON the state road between Boston and Lawrence, Mass., just beyond the great elms at Phillips' Andover Academy campus, there is a spot formerly known as Frye Village, which is bustling with building activity. Today the place is known as Shawsheen Village, and the pretty little stream which plays hide and seek under the trees is the Shawsheen River, from which the village takes its new name.

Winter's cold and deepening snow have not stopped the activity which is transforming a small country settlement with typical mill houses into what will undoubtedly be one of the most beautiful villages in the eastern part of the United States; a village in which every house will be of Colonial architecture of the Georgian period, and yet no two houses will be alike; a village in which even the stores, schools, post office, community building and every other structure will conform to the same architectural design.

Nearly two score houses already border the state highway, officially designated as North Main Street, and the intersecting streets, but the village is at present only in embyro. Plans today call for development work for nearly three years in advance but what the future will bring to the village time alone can tell.

Some months ago William M. Wood, president of the American Woolen Co., whose estate borders Shawsheen Village on the south, purchased Frye Village, with its quaint old mill nestled away under the trees, with its little group of typical mill houses of a half century ago and with a large tract of rolling country. Through this area, from north to south, runs the state highway between Boston and Lawrence, while from east to west runs the old coach road between Haverhill and Lowell.

New and Remodelled Houses

Mr. Wood saw the possibilities of the place. He had the little mill houses moved back, he laid out streets, and with architects and carpenters he transformed the whole area into a sort of fairyland. The ugly little mill houses were rearranged and regrouped and a new interior and exterior was given each. They were transformed into the most attractive Colonial cottages imaginable. Then came brick masons and added to the village a group of brick houses, of the same style of architecture. The little paths were macadamized, edgestones were laid, granolithic sidewalks appeared almost overnight. Water, gas, electricity, sewers were installed. Steam heat took the place of stoves. The section known as Frye Village had disappeared and in its place came a new village which has been named by Mr. Wood's daughter as Shawsheen Village.

In a new village there is usually a flashing, crashing sense of newness about everything. In Shawsheen Village there is nothing of the kind. That part of the work which has been completed, which is a very small part as yet, looks as if it had been built in Colonial days and had been kept in spic and span order by some fairy godmother. Scores of buildings under construction force one to admit there is a newness about the place, but the invitingly homey dwellings under the overhanging trees puzzle one by their appearance of permanency as if General Washington might have stopped at their thresholds in years gone by.

The explanation came readily enough from one of the architects. Every dwelling, he said, was either new or remodelled to such an extent that anyone but an expert would be unable to tell it from a new one. The builders, with the aid of the architects, have taken great pains to have the idea of newness completely removed from the finished work. The brick that is used in some of the houses, while new brick, exactly duplicates the old fashioned brick of a century ago. The interior and exterior finish of every building is turned out in the mill that once manufactured thread and has been converted into a woodworking shop and employs the most skilled craftsmen. Their work is carved out of immense timbers. The smallest detail is given the most careful consideration before it is carried into effect. If there is anything about it which proves distasteful when placed in position, it is either changed or discarded entirely.

Landscape Development

No tree, whether a dozen years old or more than a century old, is permitted to be cut down. If it stands in the way of a street or a dwelling or a store, it is carefully dug up and transplanted. A row of trees were standing alongside a group of dwellings and on the site of a group of stores. Every tree is being transplanted to a new position about a hundred feet away where they will overhang the waterfall and two new bridges of the Shawsheen. Neither the waterfall nor the new bridges are yet constructed but workmen are preparing for them with the opening of spring.

At the crossroads, which will be the community center of the village, a two-story Post Office building is now being erected. This building will eventually be one of a group of community buildings. A side street forms a sort of triangle and the entrance to the post office is at the narrow end. The building broadens out towards the rear and in that part will be located a general store where groceries and provisions and other necessities are to be carried. Later, as the village grows and the stores increase in number, the general store may become a market or grocery exclusively.

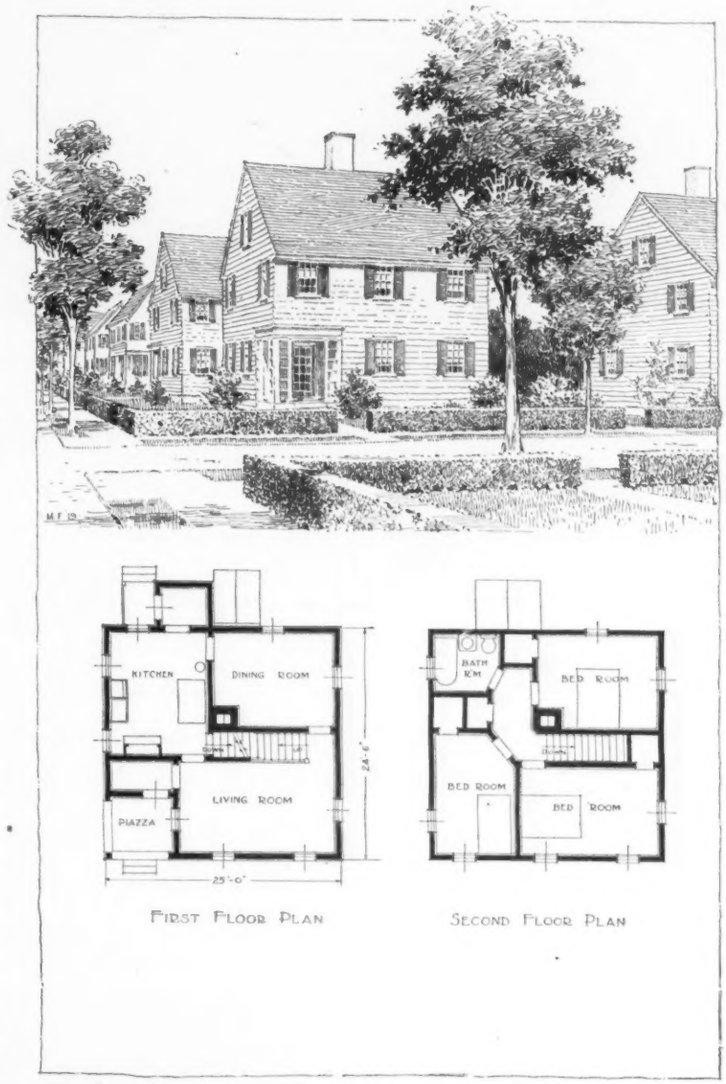
On the second floor there will be ten offices which will be used by some department of the American Woolen Co. that has work in connection with the development of the village. It may be that the Homestead Commission of the company will occupy them. As yet definite disposition of them has not been made. There will be a dance hall, a gymnasium, rooms for a boys' club with shower baths and complete equipment, etc. The entrance to the second floor will be from the Main Street side of the building beyond the Post Office quarters. The entranceway is just being completed at the woodworking shop by master artisans and will be of rare beauty. All of these entrances are built in the local shop and all are different. Above the doorway in one of them was a little fan-like design, a small part of the detail of the finished doorway, and yet it took one of the most skilful workmen with the most modern woodworking machinery just four hours to complete that fan.

In front of this building, which forms the centre of the village, in a beautiful angle shaded by two great elm trees, the foundation is already in place for a memorial fountain which Mr. Wood will erect to the memory of his daughter who passed away in the influenza epidemic of 1918.

Municipal Ice, Boating, Bathing

Just beyond and to the west of the Post Office is a large semi-natural pond which has been enlarged by the erection of a concrete dam. Here they have this winter cut 2,000 tons of ice, housed it in a community icehouse, cutting and housing being done by electricity. Inside the concrete work of the dam is a broad flight of steps leading to the bottom of the pond, placed there to provide bathing during the summer. The dam is so constructed that every bit of water can be drawn off after the bathing season, the pond cleaned and then be filled by natural springs and brooks for the ice crop of the following winter.

Every street in the village will be 60 feet in width and shaded with great trees as rapidly as they can be transplanted. Some of the larger houses are built for two families, a single front doorway leading into an attractive vestibule from which open separate doors to the two apartments. The houses cost from $10,000 to $12,000 each, and may be purchased at cost by employes of the American Woolen Co., or rented at cost if they prefer. No detail or care is neglected in the interior of the houses. The plumbing is of the most modern and approved type. The houses are heated by steam, lighted by electricity, are connected with a sewerage system established for the village, and for fuel the occupants may



TYPE OF SINGLE HOUSE BUILT BY THE HOMESTEAD ASSOCIATION OF THE AMERICAN WOOLEN CO. AT FITCHBURG AND LAWRENCE, MASS.

10 STORY WAREHOUSE. 1 GANG, 83 DAYS
COAL POCKET AND 4 STORY MILL
3 MORE MILLS AND DYE HOUSE

ORIGINAL ORDER REINFORCED CONCRETE
REPEAT ORDER CONCRETE, BRICK AND TIMBER
REPEAT ORDER BRICK AND TIMBER

RESPONSIBILITY

We must have an efficient organization or the best engineers and owners would not use us repeatedly and compliment us so highly as they do on the quality of our work.

If our work is good enough for
Naumkeag Steam Cotton Co., Salem, Mass.
Passaic Cotton Mills, New Bedford
Appleton Company, Lowell, Mass.
Merrimac Chemical Co., Boston, Mass.
Nashua Light, Heat & Power Co., Nashua, N. H.
New England Waste Co., Boston, Mass.
Saco-Lowell Shops, Newton Upper Falls, Mass.
Sanford Spinning Mills, Fall River
Hamilton Manufacturing Co., Lowell, Mass.
It is good enough for you

NEW ENGLAND CONCRETE CONSTRUCTION CO.

CONTRACTORS

BOSTON, MASS.

Specialists for
Mills—Warehouses—Power Plants—Factories
Fireproof—Slow Burning

have their choice of gas or coal, for every house has gas connections.

Plan Municipal Laundry

The Post Office building is equipped with running ice water throughout and will use fuel oil for heating the boilers.

POST OFFICE BUILDING AT SHAWSHEEN VILLAGE, ANDOVER

Plans are under way for a municipal laundry where fuel oil will be used. Then there will be a municipal garage of Colonial design with a capacity of 100 cars for residents of the village, with separate heating plant. The garage will be two stories, 175 x 70 feet.

Diagonally across from the Post Office is the "Voting Cabin," a structure unique in the entire country. It is an exact reproduction of the little stone headquarters of General Washington on the Potomac, built of rough stone, a single story high, and it is to be used exclusively as a voting booth by the town.

Every village must have an industry to keep it abreast of the times. Shawsheen Village will have such an industry. Frank H. Hardy, agent, is erecting a three story concrete structure 200 x 85 feet, where brushes will be manufactured.

Just a short walk down Haverhill Street is the railroad crossing. Here the project of a railroad station, also of Colonial pattern, for Shawsheen is being discussed. A church, a library, a Town Hall costing $500,000 with a seating capacity for a thousand people, a theatre and business blocks are already being talked about. The Dove mansion house on the property may be remodelled into a hospital.

Mill agents, superintendents and overseers are already making their homes in Shawsheen. Acting Agent Ernest Johnson of the Washington Mills is the latest addition to the village, having taken a brick residence on Windsor Street.

Many people are at work building the village. Frank H. Hardy is probably the busiest of all of them and maintains an office on the premises with an office force who can tell you down to a cent just what everything costs that goes into the making of the village. John Franklin is the consulting engineer. Adden & Parker, architects, of Boston, are designing the dwellings and the voting cabin, and some of the brick structures were designed by James E. Allen of Lawrence. Perley F. Gilbert is the architect now designing the municipal laundry. Chester S. Patten of Melrose, Mass., is the general contractor.

How large is the village to be? Where is the growth to stop? Nobody knows. There are already many times the number of applications for houses as there are houses under construction or completed. If there are—and this is only a supposition—eight times as many applications as there are houses now, that would mean a village of nearly 400 homes. Nobody knows where the development will end, or when it will end.

Homestead Development in Lawrence

What the American Woolen Co. is doing in Shawsheen for the agents, overseers and other department heads and officials, the Homestead Association, Inc., of the American Woolen Co., is doing for the employes of the company in Lawrence, in a section of that city located within easy walking distance of the mills and yet sufficiently distant to be away from the noise of the machinery.

HARVESTING MUNICIPAL ICE CROP AT SHAWSHEEN VILLAGE. IN SUMMER POND WILL BE USED FOR BOATING AND BATHING

Here the Homestead Association is helping the employes to own their own homes, is building them and selling them to the employes at cost and upon a plan of easy payments which amounts to no more than the tenant would pay as rent.

In the area served by Salem, Greenfield, Market and adjoining streets, the activities of Shawsheen are being duplicated. Loans have already been made to several hundred employes and although the association was formed only last August, many completed dwellings are now occupied and many more are under construction.

At present headquarters are located in the company's general offices at 245 State Street, Boston, but it is planned to move them nearer to the scene of the actual work later. Possibly they may locate in the Post Office building at Shawsheen.

Fitchburg and Maynard Developments

In addition to the Lawrence Homestead project, there are also similar developments under way at Fitchburg, Mass., and at Maynard, Mass., both under the direction of the Homestead Association.

RIVER FROM WHICH SHAWSHEEN VILLAGE TAKES ITS NAME; TO BE CENTER OF LANDSCAPE DEVELOPMENT. AT THE LEFT, VOTING BOOTH UNDER CONSTRUCTION WHICH IS REPRODUCTION OF WASHINGTON'S HEADQUARTERS ON THE POTOMAC

The Homestead Association thus becomes a subsidiary to the American Woolen Co., helping its employes to own their homes by making easy payments. Nor does it confine its work to new construction, for if an employe has lived in a house for a term of years and desires to buy the property, the Homestead Association will make the necessary loan for its purchase, the only requirement being that the house shall be conveniently located to one of the company's mills.

Shortage of buildings in which to make their homes resulted in many employes of the American Woolen Co. making inquiry of the company for loans or assistance in purchasing dwellings. Rents advanced and finally the officials of the company solved the difficulties of the occasion by forming the Homestead Association, Inc., of the American Woolen Co.

Plans for Purchasing Homes

Three plans under which an employe may own his home are provided:

First: Any worker may buy one of the new houses to be built on land belonging to the company, the land to be sold at a low figure and the house to be built at as low a figure as possible. As an example, a house selling for $4,000 will be sold for $200 initial payment and a monthly payment equal to a rental value of the property, or about $25 per month, from which, each quarter, will be deducted interest on the mortgage of 4½ per cent. and the taxes and insurance for the same period of time, leaving the balance to be applied to a reduction of the mortgage. If a workman leaves the company or is discharged for any reason, the Homestead Association gives him the option of receiving his initial payment back, together with interest at 4½ per cent., or the employe may retain his house just as though he were an American Woolen Co. worker, until he has paid a sufficient amount on his mortgage to transfer it to a bank and thus continue to live in his house.

Second: Any worker who desires to build his own home may apply to the Homestead Association for a building loan up to 75 per cent. of the total cost of the lot and the house he plans to build. In this case he would have his own plans prepared and hire his own builder. The Homestead Association will loan money only on single houses. A table of payments under this plan shows that if the loan amounted to $2,000, the worker would pay $15 per month; $19.50 per month for a loan of $3,000; $24.50 a month for a loan of $4,000 and $30 a month for a loan of $5,000. Of these payments, interest on the loan will be computed every three months, interest charges thus decreasing every three months while the sum paid towards the principal will correspondingly increase. The same terms apply in this case as in the first, if an employe leaves the company's employ or is discharged.

Third: If a worker desires to buy the house in which he has been living, the Homestead Association will take a mortgage at 4½ per cent. up to 75 per cent. of the appraised value of the house and land. The same plan of payment will be made as under the second plan.

Loans Limited to $5000

Applications for houses or loans are made through the mill agents and the amount of the loan is limited to $5,000. All building plans and contracts are subject to the approval of the Homestead Association. Under the second and third plans, the monthly payments apply only to the interest on the mortgage, the worker being required to carry sufficient fire insurance to cover the mortgage on the property. Payments

commence a month from the date of the loan or, in the case of the first plan where the company builds the house, one month from the date at which the house is ready for occupancy, and are made to the paymaster of the mill where the worker is employed. Sale of houses to other than employes of the American Woolen Co. is prohibited for five years from the date of purchase.

ROADWAY BEING PUT THROUGH PARTIALLY DEVELOPED STREET, AND HOUSES FOR EXECUTIVES AT SHAWSHEEN VILLAGE

TYPE OF DUTCH COLONIAL HOUSE COSTING $10,000 IN DEVELOPMENT FOR EXECUTIVES AT SHAWSHEEN VILLAGE, ANDOVER, MASS.

Reasonable restrictions on the property are included in the deeds to protect the workers.

The groups of houses contain four, five and six rooms. As fast as a sufficient number of employes in other localities become interested, additional projects will be started. The employes are given the benefit of reduced costs where houses are erected in groups of ten or more. The association will also aid its workers in other cities where it has its mills, to build or own their own homes under conditions similar to those already outlined.

So liberal are the terms upon which the American Woolen Co. is aiding its employes to own their own homes that no sooner does one man adopt the plan than he promptly interests his associates and soon a group is formed which rapidly grows in size. The workers have passed the information to those of other companies, who have in turn made inquiry from their own officials with the result that in the very few months that the plans have been in operation, hundreds of inquiries have been made from both large and small corporations throughout the country, many of which plan to follow the example of the American Woolen Co. and aid their own employes to acquire homes. Thus is being built up a citizenship of contented workers, property owners and taxpayers, a citizenship of true Americans.

Paramount Knitting Company Additions

For Lunch Room, Box, Machine Shop and Looping Departments

DURING the Summer of 1919, the Paramount Knitting Company decided to make further extensions to their already large plant at Kankakee, Ill., and construction work was started on another unit in the shape of one section of what will eventually become one of their largest and most modern buildings.

The portion completed this year, shown in the accompanying illustration, is 105 feet in width, 100 feet long, three stories and basement in height, and is designed to be constructed to an ultimate height of six stories and basement, as well as to be extended lengthwise to a considerable distance.

This building will be connected with the other buildings of the company by bridge, and for the present will be used to house new and modern lunch rooms, printing and box-making departments, machine shop, etc. At some later date it will be used for additional machinery. It is of concrete construction throughout, flat slab floors, exposed concrete columns and lintels, and red brick curtain walls. Working floors throughout are of maple. The building is equipped with the usual freight elevator, sprinkler system, toilets and coat rooms, and with the most modern plumbing fixtures.

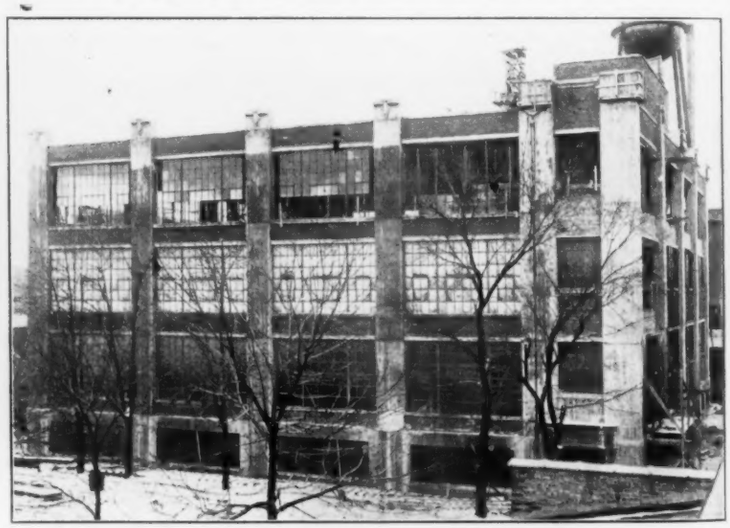
ATTRACTIVE BUILDING ERECTED BY PARAMOUNT KNITTING COMPANY FOR LOOPING DEPARTMENT

This work was constructed by the company's own construction forces under the supervision of Lockwood, Greene & Co., engineers, Chicago office, who also prepared the plans and specifications for this work.

New Looping Plant

The Paramount Knitting Company discovered that a number of their employes in the looping department came from a part of the city, located at least a mile from their plant, and following out the novel idea of taking the work where the employes are, rather than having them come to the work, they decided to locate a small branch looping plant in a section of the city which would be convenient for these employes.

This particular section of the town was entirely devoted to residences, and for this reason an attractive building was desired. Lockwood, Greene & Company's Chicago office was called on to produce an attractive design, with the results shown in the illustration. This building provides space for thirty to forty employes engaged entirely in the looping department, and the building was occupied late in the year 1919.



ADDITION TO MAIN MILL OF PARAMOUNT KNITTING CO., KANKAKEE, ILL. TO BE USED FOR LUNCH ROOM, PRINTING AND BOX MAKING, AND MACHINE SHOP

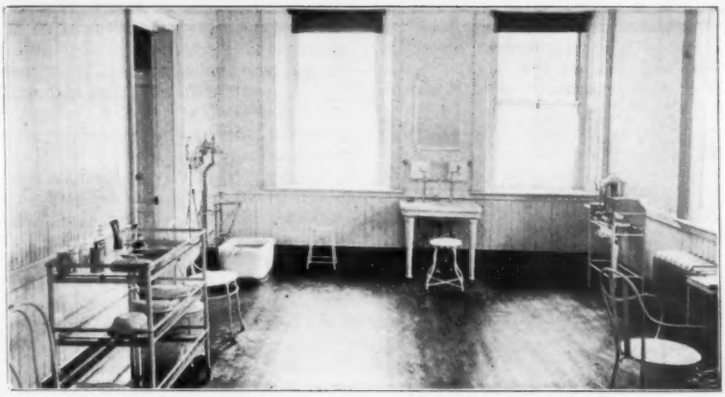
The exterior of the building is of stucco, and yard and surroundings have been carefully graded, shrubbery and trees set out, and everything possible done to make the surroundings attractive. The building is equipped with an independent heating plant in the basement, with indirect lighting, most modern toilet rooms and wash rooms, and with a loading vestibule connecting outside shipping platform for shipments to and from the main plant located about one mile away.

Hamilton Mfg. Company's New Mill

New Carding and Spinning Mill Doubles Capacity of These Departments

THE new mill of the Hamilton Manufacturing Company, at Lowell, has been roofed in and construction is nearing completion. This mill represents the second big step in a plan of extensive development which this company has been carrying on for some years.

Previous improvements have included a comprehensive rearrangement of existing equipment, which was described



FIRST AID ROOM AT HAMILTON MFG. COMPANY'S NEW HOSPITAL

in these columns at the time. The present increase is a large step up in productive capacity which doubles the output of the plant. In building this large new mill the removal of five small mill structures was necessary, and this fact, together with some local engineering difficulties, has delayed finishing construction much beyond the time at which it was expected to be finished. For instance, a large retaining wall along the canal was necessary which had to be built during the limited time available while the canal could be drawn off on Saturday afternoons and Sundays.

Some delay also was experienced by the necessity of running a power house until Thanksgiving day, on a site which had to be cleared for the new mill before the latter could be completed. The extremely wet weather of the past season added also to the delays encountered.

The new mill will have a complement of 125,000 spindles which is about equal to existing equipment, thus doubling the spindle capacity of the plant. New preparatory equipment of carding is included, and the outfit of the addition will be mostly new machinery. Dimensions of the new structure are 675 feet long by 135 feet wide, four stories high.

The type of construction is standard mill design, like the last mill erected, with steel beams and uprights, wooden floors, and brick side walls. The contractors are the J. J. Prindiville Company of Framingham, Mass. The mill is equipped with the local lighting system, with standard reflectors, having pilot system for emergency use.

Other Recent Improvements

Other improvements recently completed are their new hospital, and new stores department. The appointments of the hospital have far surpassed the requirements of factory regulations, and are on a par with the best class of hospital equipment to be found in the state, in industrial establishments. Two nurses are in constant attendance, and nothing is lacking to give adequate service for emergency, rest, hygiene and welfare work. Provision is made also for minor operations, such as applying forceps, ligatures, hypodermics or anything which may be necessary for emergencies, or of such character that nurses may handle them before the arrival of a physician, or the conveyance of injured or seriously sick persons to the nearest hospital.

New Stores Department

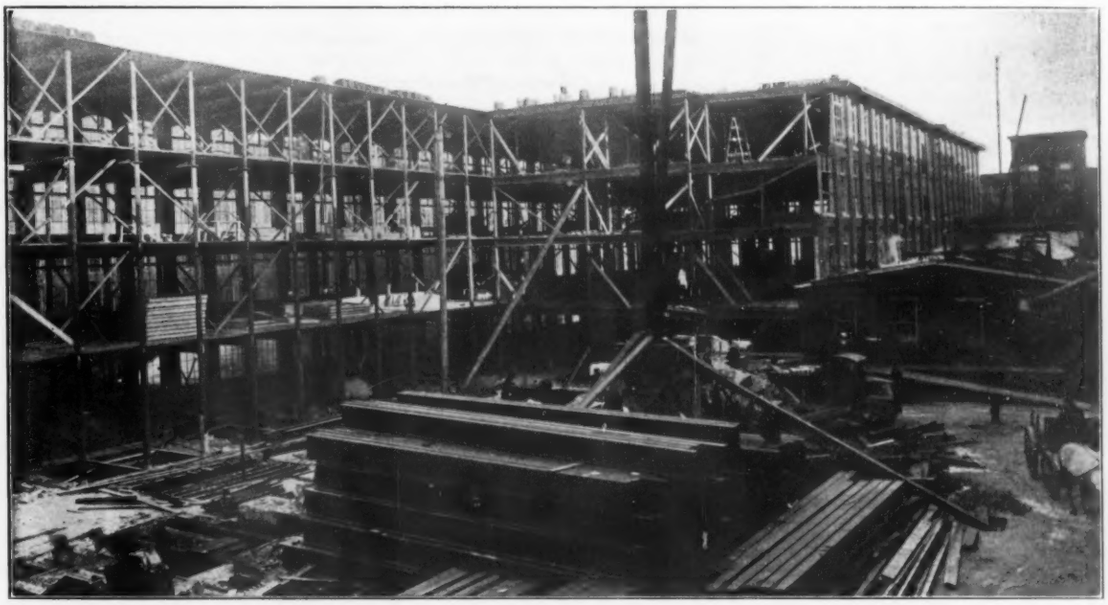
The new stores department is placed in the basement of the building adjoining the new addition, and is the fruition of plans long in development. Now that it has arrived the officials wonder how they did without it so long. This equipment is assembled in a room about 200 feet by 40 feet, and consists of steel racks built by the Engineering and Equipment Company, Boston, Mass., for storage of ordinary supplies and a supplementary set of broom racks. The arrangement is not as yet completed at this time, and the orderly storage of parts has not been completed, but such utility of the equipment has developed since the plan was started, with its perpetual inventories, that it bids fair to exceed anything contemplated in its growth and development.

This is a common experience with textile mills who have not known the benefits of a general stores system. For it is generally found that the estimation of requirements of such a plant taken from stores in sight, gives only a part of the story of what such a valuable adjunct means when it gets into operation. Departments which have been handling their little parcels of stores gradually unload their accounts onto the general system, till finally it grows beyond anything contemplated.

New Power Equipment

Along with the general plan of improvements have come several new units in their hydro-electric equipment. Previously, the mills of the Hamilton Manufacturing Company were driven partly by water turbines geared into the distributing drives. Electric generators of corresponding size have been installed recently, which develop alternating current at 220 volts and distribution of power is now by group and individual electric motors, in such manner as to give fully 100 per cent. more power applied at the machines than was the case with the geared connection from the old turbines. This is due to both the difference in the efficiency of the electric transmission, and to the superior economy of the new units, although elimination of the friction of the geared drive and belt transmission to line shafts is held to be responsible for most of this gain. The electrical equipment is General Electric, and generators are of vertical 3 phase type, 60 cycle, 220 volts.

The building of this mill completes only one step in the working out of a comprehensive scheme of improvement and development which has been under way for several years.



ADDITION WHICH WILL DOUBLE CARDING AND SPINNING DEPARTMENTS OF HAMILTON MFG. COMPANY

Newmarket Mfg. Co. Housing Development

Brick Houses of 4, 6 and 8 Rooms, for 2 and 4 Families

By *Stanley B. Parker**

THE housing of mill employes has troubled the mill operator for many years and the rapid growth of mills, coupled with the scarcity of first-class operatives, has lately made the problem one of such a serious nature as to require the active attention of specialists in house-building. The accompanying illustrations of the new development at Newmarket, New Hampshire, for the Newmarket Mfg. Co. show what has been accomplished by a farsighted treasurer with the assistance of the Housing Company of Boston, a service corporation formed and run especially for the purpose of designing and building workmen's houses.

* Architect, The Housing Company, 248 Boylston St., Boston.

Many manufacturing concerns throughout the country have added to their mill buildings without due regard to the housing of employes. Mill owners in general have not met the problem of housing their employes until the question has become of such moment that they are forced to do so, and when the decision is made to do something to relieve the unsatisfactory conditions, it has been generally done in a hasty manner without real consideration of the ultimate value of the investment itself.

Viewpoints of Mill Owners

It has been hard for mill owners to realize that houses for mill operatives, except in rare instances, will not pay according to the customary real estate standards of direct return for the money invested. The indirect return, however, although difficult to measure by any known standards, is perfectly definite in that the labor turnover of the mill is materially reduced.

It is consequently with the assurance that the labor turnover will be reduced that industrial plants are, to a greater or lesser degree, exerting an effort to better their housing conditions.

Mill operators have attacked the problem, when it has confronted them, from various points of view. Most of them, as the buildings themselves must of necessity be as economical as possible, have made the mistake of building the houses in the cheapest way, regardless of future requirements and regardless of the rapid depreciation and expense of up-keep. Few mills have realized that the houses which they build should be designed and constructed with the same care and consideration with regard to appearance, usefulness and durability, as the mill itself.

Problem at Newmarket

The Newmarket Mfg. Company has not assumed that workmen's houses were

Lorraine Manufacturing Co., Pawtucket, R. I.

Clients of Charles T. Main during 1919

The following list includes a few of those for whom we have executed commissions during the past year:

Allen Woolen Mills, at Rochester, N. Y.

Aetna Mills, at Watertown, Mass.

Auburn Woolen Co., at Auburn, N. Y.

Columbian Mfg. Co., at Greenville, N. H.

Gleasondale Woolen Mills, at Gloucester, Mass.

Gloversville Knitting Co., at Gloversville, N. Y.

Goetz Silk Mfg. Co., at Holyoke, Mass.

Mercury Mills, Limited, at Hamilton, Canada.

Pontoosuc Woolen Mfg. Co. at Pittsfield, Mass.

Shirreffs Worsted Co., at Fitchburg, Mass.

S. Slater & Son, at Farnumsville, Mass.

West End Thread Co., at Millbury, Mass.

James & E. H. Wilson Co., at Pittsfield, Mass.

During the years of experience of this organization as specialists in textile mill design and equipment we have served many clients in the United States and Canada. A large proportion of this work came as repeat orders from old clients.

Our work includes the preparation of plans and specifications for the erection and complete equipment for industrial plants, including those operated by steam hydro-electric and water power as well as to aid you in the solution of problems relating to increased output and efficiency in plants now running.

We also make examinations of water powers, hydro-electric developments and manufacturing properties with reference to their improvement and value.

Have you a mill problem? We invite inquiries.

CHARLES T. MAIN
ENGINEER
201 DEVONSHIRE ST., BOSTON, MASS.

4-87

something which could be best done by the mill staff. The problem which confronted the treasurer of the company was to provide housing quarters for fifty families more than those already taken care of. He realized the desirability of making the operation one which would be a permanent investment of the company, as well as a means of providing the immediate need of houses.

Economy has been the first consideration, not only from the point of view of simplicity in design and the elimination of non-essentials, but also, in its broadest sense, in the use of durable materials and good workmanship. Men of building experience know that the difference in cost between durable material and perishable material becomes negligible when compared to the total cost. As an example of this, it was demonstrated at Newmarket that the difference in cost between construction of clapboards and that of brick was only six per cent. of the total cost. It is obvious that this amount, as the houses are built of brick, will soon be saved by eliminating the necessity of frequent paintings.

General Layout

The general layout has been studied with a careful regard to the continuation of the existing development, which had utilized nearly all flat land. Starting at the public thoroughfare, Elm Street, which is the main line of access to the village and mill, the existing development extended to land of uneven topography, flanked on one side by the Boston & Maine Railroad property and on the other by rugged woodland of unusual beauty. This woodland is unserviceable for building purposes and lies between the development and the mill.

There are two existing main streets of the development starting from and running perpendicular to Elm Street, which had reached points no longer desirable to continue. Although unlimited building area lay beyond, there intervened in the lower section a tract of land so low and swampy as to be prohibitive with regard to expense in execution and impossible to reconcile with the existing lines of sewage. The extension of the upper street, which was near the woodland, was therefore turned slightly at an angle toward the mill, which is beyond the woodland, allowing at the same time a more serviceable gradient to the road itself and skirting the woodland in such a way that the latter may be used as a park. The street separates the park from the houses, and houses are built on one side only facing the park.

The extension of the lower street, which is near the railroad track, was curved toward the upper extension and avoiding as far as possible the lowland, meets the upper street and with it has been curved around the woodland, thus opening a new means of access to the mill and village. Houses on this street, as on the upper extension, face outward, forming an attractive frontage in the direction of the railroad track. A compact new development has thus been formed, triangular in general plan, which gathers the two principal lines of passage into a new and shorter mill approach, with house lots contained within the triangle.

Minor cross streets complete the arrangement of house lots, which are all of generous proportion, with a view of giving each family an equal amount of front and back land for garden purposes. As there are no apartments or flats in the development, each family has a definite plot of land over which there can be no differences with regard to the division of care, and each family is responsible for the proper care of its own lot.

In the center of the triangle formed by the new roads, and back of the houses, space had been allotted for the purpose of a future community garage. The demand for garages has come earlier than was expected, and a part of this reservation has already been utilized for a six-car, brick garage of the shed type.

The water supply has been a comparatively simple matter to execute, as the town main already runs to the old development. New pipe lines from Elm street have been installed by the town for the new as well as the old development, with fire hydrants at suitable intervals. The sewage disposal has been a more troublesome question, owing to the fact that connection with the town sewer could not be effected without the installation of the pumping equipment which would drive the sewage over the intervening hill; or by a doubtful alternative, that of building a new sewer in a round-about route over land which is unserviceable for building. A separate sewage disposal plant has been installed to take care of the waste from this development alone, which is designed with great care with regard to the purification of the sewage, using the Imhoff system of bacterial chambers and with the added protection of chlorine treatment and drying beds.

Two and Four Family Houses

The houses themselves are arranged in consideration of a serviceable amount of convenient floor area necessary to accommodate the requirements of mill operatives' families of different sizes. Some of the houses are four rooms each, and the four-room type has been grouped with four families in one building. All the other houses are double, of six and eight rooms. The

GENERAL PLAN OF NEWMARKET HOUSING DEVELOPMENT, SHOWING ARRANGEMENT OF HOUSES AND LOTS.

More goods—production—

is the urge of the textile manufacturer.

There is an economical limit to the capacity of the machinery. As often as otherwise this limit is not reached.

Production, however, depends on many other factors besides machines—on such apparent minor points as temperature, light, humidity, ventilation, sanitation.

This last item, for instance—the lost time through preventable ill health of operatives—is at all times a problem of grave importance to the profit of a textile mill.

Proper sanitation and housing conditions are means to stability of employment and a minimum labor turnover.

The solution of these production problems are engineering tasks.

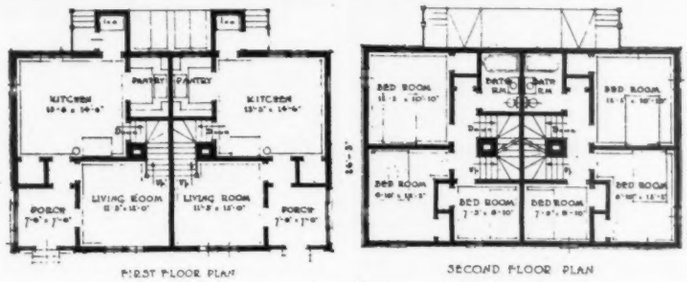
SERVICE

J · E · SIRRINE

E N G I N E E R

GREENVILLE · SOUTH · CAROLINA

main feature of the plans has consisted in making the kitchen the family living room, and as such it is commodious in



FLOOR PLAN OF TYPICAL 6-ROOM DOUBLE HOUSE

size. In order to make the kitchen more serviceable as a living room, a pantry with the sink installed in it has been arranged so that the usual untidiness of kitchen appliances may be placed here.

On the ground floor in each house, besides the kitchen, is a living room which may be used in many cases as a bedroom, but which has been given the families as a parlor. Some of the six and eight room houses have also a dining room, but where dining rooms occur it has been so arranged that the dining room may be used for a bedroom if the family so desires.

A variety in elevation has been gained, not by the usual method of changing the roof pitch or exterior elevation of the same plan, but by the only logical method, which is varying the plan of the house. This of itself makes the desired variety in the elevation. The variation in plan comes not only from the necessity of making houses unlike, but also because the demands of the operatives are different, according to their respective callings or habits of living.

It will be noted in the illustrations that some of the houses have a novel arrangement of porch, which, while glazed in, furnishes a hall and vestibule to the house. In the summer, by the installation of screen doors, this porch becomes a screened outdoor porch. This feature may appear at first glance to be rather a radical departure from the usual course, due to its apparent increased expense. But when one considers that houses in New Hampshire, in order to be comfortable, must have an outside vestibule, it will be recognized that the space can be used only as such, or it can be made large enough to serve the two purposes of vestibule and porch.

Other Features of Houses

There are other special features which are worthy of attention in the design of these houses. The majority of rooms have windows on two sides, and are so arranged that the house may be readily warmed from a single kitchen range without the necessary addition of furnace heat. Allowance has nevertheless been made for the installation of one-pipe furnaces as demands may arise, and some of the houses are already equipped with this type of heat.

In view of the fact that the houses will be heated from the kitchen range, the bathrooms in each house have been so situated as to be out of danger of freezing. In most of the plans the bathroom is on the second floor, with the boiler from the range in the bathroom. Others, however, have bathrooms arranged off the kitchen on the first floor, in this way furnishing what to some operatives is rather too convenient a position for the bathroom. The arrangement has proved to be a great saving of time to the housekeeper in the care of children.

The whole development, the house, town plan, utilities, and the many complicated problems which arise in building houses, was thoroughly studied and estimated accurately before the work was begun, and has been carried through smoothly and quickly to a successful conclusion in a surprisingly short space of time. The whole development shows the value of careful consideration and co-operation of the mill staff, with outside professional service, which is automatically connected with expert building service.

Although changes have been made in the work as it developed through the interest of those connected with it, the program of building operation has been completed without delay and shows even in the unfinished state to be successful as to its appearance. The development, although begun in early summer, has been carried nearly to completion in spite of obstacles of a more severe nature than is generally encountered in building. The character of the underlying soil is intermittently hard clay and ledge, and although difficult and uncompromising in its structure, has not seriously hampered the progress of the work.

Boarding House for Women

Besides the houses built at Newmarket, the Newmarket Manufacturing Co. has transformed an old hotel, which was of fine and dignified design, into an up-to-date and attractive boarding house for girls. It is arranged to accommodate 30 beds, with a cafeteria for 60 people at one sitting. New kitchen appliances and laundry have been arranged in an efficient manner. In this way a building which otherwise was a source of annoyance to the town on account of its unsanitary condition has been made over into a valuable asset to the company, at the same time preserving a fine example of Colonial architecture.

The Newmarket Manufacturing Co. have considered the housing facilities for their new employes a part of the general expense of their mill production, and in so doing have been far in advance of most mills in accomplishing permanent results. All the work in connection with the development, including town planning, architectural design, engineering and construction, was done by the Housing Company, Boston, on a cost plus a fixed sum profit basis.

FOUR-FAMILY HOUSE IN FOREGROUND; GLAZED PORCH SERVES AS A VESTIBULE IN WINTER AND AS A SCREENED PORCH IN SUMMER. TWO-FAMILY HOUSE ALSO SHOWN

VIEW AS SEEN FROM THE R.R. HOUSES FACE RAILROAD IN EVERY CASE, ROUGH GRADED STREETS EXTENSIVE PLANTING OF TREES AND SHRUBS CARRIED OUT

Bay State Cotton Corporation Development

Includes New Spinning Mill with Complete Conveyor Equipment

IN a general scheme of development extending over a period of several years, new construction for the Bay State Cotton Corporation has become extensive for 1919-1920, not alone at Lowell Weaving Company, but also at the Newburyport plant. At the latter plant extensive internal changes, additions and rearrangements for the equipment are being made, including new elevator and toilet towers and widening of alleyways for transport convenience.

At the Lowell department construction is practically completed on their new weaving mill, and is well advanced on their new storehouse. It is expected that the storehouse will be turned over to the owners by the latter part of February, while the new spinning mill will be turned over in all probability some time in March. Construction work is being done by the Aberthaw Construction Company, Boston.

The new spinning mill is 430 feet long, 128 feet wide, and has a height of four stories and a basement. Bays and spans are 28 x 28 feet. The storehouse, which is seven stories high, covers 90 x 120 feet. Both buildings are of reinforced concrete construction, and with their equipment represent an investment of about $1,000,000.

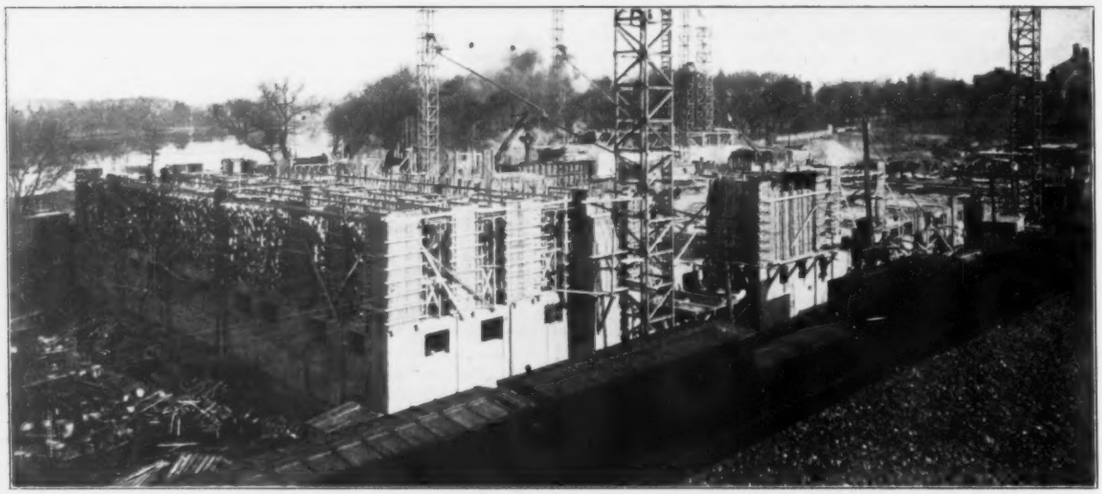
Plans for the spinning mill were made by Lockwood, Greene & Co. The picker room is located on the top story, instead of in the basement, as has been the practice for years. Advantage is taken of gravity to move materials down from this room to the various floors successively from one floor to another, particular care having been taken to avoid handling goods over more than a very short distance. Further description of this conveyor is given later.

The provision for admitting daylight is of the modern type, with a very large percentage of outside walls filled with sash. The latter is furnished by the Detroit Steel Products Company. This feature is extremely important in the operation of buildings with such facilities, if they are to enable the best layouts and most efficient operation of equipment.

New Equipment

The equipment for the new spinning room includes the following: Saco-Lowell pickers, cards, drawing, slubbing, roving, spinning, warpers, and spooling. Combers, sliver and ribbon lap machines are built by the Whitin Machine Works.

Electrical transmission is used throughout, and equipment will be furnished



NEW YARN MILL AT LOWELL DIVISION OF BAY STATE COTTON CORPORATION

by the General Electric Company. The group form of drive is used, two and four frame for roving and individual drives with Morse silent chains for spinning frames. Voltage used is 550 for motors.

The lighting equipment is of the general illumination type with deep dome reflectors. A pilot system is installed for convenience of watchman, and use in emergencies when main system may be out of order. Current is supplied the lighting system at 110 volts.

Individual drives for the Kitson pickers is furnished by motors mounted in the usual manner on top of the A stands.

The spinning mill will be equipped throughout with the Carrier system for humidifying and conditioning the air of all departments.

Conveying System

The conveying system of this new spinning mill is supplied by the Standard Conveyor Company of Buffalo, and is the main new feature of its construction. For convenience description is divided into three parts, and the following is a brief description of its principal details:

1. Lap Conveyor System.
2. Slubber Roving System.
3. Fine Roving and Spun Yarn.

Lap Conveyor System

The laps are to be conveyed from the picker machines on the fourth floor and distributed to the cards on the third floor. The empty containers as well as all surplus laps, are to be automatically returned to the picker room.

At the delivery end of the picker machines there is a line of roller gravity conveyors serving eight machines; this conveyor is guarded on the south side only and discharges into a spiral chute, which in turn deposits the cradles containing laps on the belt located on ceiling of third floor. In connection with this belt there will be four diverting points, the operation of which may be controlled from any alley. In this manner the containers will be diverted off the belt onto sections of gravity roller carrier directly along the wall and at a convenient height so that the laps may be removed and delivered to cards.

Upon removal of the laps, the containers will automatically pass through the openings in the third floor and deposit themselves onto the return belt located on the second floor. The containers will all travel to the southeast corner of the building, where they will be diverted onto gravity roller carrier and automatically fed into a vertical lift elevator, which in turn discharges near the ceiling of the picker house. From this point they automatically return to the picker machines by means of a suspended line of gravity carriers.

Slubber Roving Conveyors

The conveyors are arranged to take the slubber roving from the three pairs of slubber units located on the north wall and deliver roving to the west end of the second floor.

Full containers are to be deposited from the two eastern slubber units directly onto the lower portion of a two-way belt, whose height is five inches above the floor. This belt delivers into a spiral chute which deposits containers onto a belt on the ceiling of second floor in order to avoid stair tower openings.

From the western slubber unit the containers are deposited directly into a spiral which also deposits them onto the same belt. At the extreme westerly end the boxes are diverted off and deposited onto a storage line of rollers. This storage line is about eight inches above the floor.

The empty containers are to be deposited onto a 10-foot section of gravity carrier, from which they will lead automatically onto inclined elevator, which extends the necessary height above the third floor, and automatically deposits them onto the return belt. This belt is so located as to provide sufficient headroom over the doors into the tower.

Leading from this belt there are three automatic diverter stations, so arranged as to divert automatically the empty containers onto a storage section in connection with each slubber unit. This automatic diverter is so arranged that at all times six empty containers will be maintained at these stations.

Fine Roving Conveyors

The conveyors for fine roving bring boxes of roving from fine frames on second floor to spinning frames located on first floor, and return empties from first to second floor.

This system consists of a vertical lift elevator of double width trays and 10-foot sections of roller gravity conveyor at the loading and unloading points. The loading and unloading points will be approximately 11 inches above the floor levels. The full containers are to be automatically deposited at the first floor. The empties are to be automatically deposited onto the elevator at the first floor and automatically deposited at the second floor.

The conveyor for spun yarn is to convey boxes of yarn from spinning frames located on second floor to spoolers on first floor, and return empties from first to second floor, and is an exact duplicate of system for conveying fine roving.

Fire Protection Doors

All openings through the floors, except spiral openings, are to be enclosed with lath and plaster and provided with tin-clad fire doors. All floor triangular sheets of spiral will also be covered on the outside with lath and plaster.

This is the first mill in the East in which this new radical conveyor system has been applied to high grade yarns for tire fabric, and this mill and the new Indian Head Mill of the Nashua Manufacturing Co., described in this issue, really mark a new epoch in the textile field. Their success in operation will be watched with the keenest interest by manufacturers the world over.

New Spirit of Co-operation

(*Continued from page 203*)

of the company, these rights could be transferred to others. To still further assist the employe, the company agreed, should the purchaser desire to borrow money from a bank with which to construct his home, to give such a bank a first lien on the entire property.

Maintains a Textile School

The company maintains a textile school where employes may study advanced work or where they may secure actual operating experience in connection with correspondence courses they may elect to take.

For the use of children of its employes, the company has fitted up and has maintained for several years, one of the finest children's playgrounds in the country, enclosed by an ornamental iron fence, with every kind of playground apparatus and equipment, shelter house, wading pool, skating rink during the winter, and where band concerts are given throughout the summer months. At all times the playground is in charge of competent instructors and accommodates children of tenderest years to those of almost adult age.

One Hundred First Aid Stations

An accident department has long been in active operation. Conveniently located, it adequately treats patients for all minor accidents, where a competent surgeon and nurses are in constant attendance. Other trained nurses are supplied by the company for duty among the families of the employes. Their services are supplied without charge and in addition to their work of caring for the sick, they advise with mothers regarding the care and feeding of infants. Domestic nurses are supplied to care for families where sickness prevents the adults from attending to these duties. Employes' children under 14 years of age have the free services of a competent dentist at all times. Situated throughout the plant are one hundred first-aid stations, completely equipped.

Sports occupy an important part of the life of the employes. There are baseball, football, golf and other teams representing all departments of the mill. There is a gun club which has a proud record in feats of marksmanship throughout New England. There are boat crews, swimming teams, basketball and soccer teams. There is no sport which is not represented, for all of which the company provides suitable directors and quarters.

American Woolen Company's Department of Labor

Of the great number of textile mills devoting time and money to the welfare of its employes, probably none has given more attention to that phase of present day business than the American Woolen Company.

Its latest move is the creation of a Department of Labor, one of the greatest forward steps for bringing into closer touch the employer and the employe. This department is charged with a close study of working conditions and with the development of constructive plans which will work for the mutual advantage of all. It is a "square deal" proposition.

At the head of this new department the company has placed Raymond S. Bartlett, and he is assisted by three field secretaries, Col. Frank S. Evans, Ignatius McNulty and Miss Grace B. Monks. The duties of the department

THE LAWTON INN, FOR EMPLOYES OF LAWTON MILLS CORPORATION, PLAINFIELD, CONN.

NOON RECREATION GROUP IN NEW BEDFORD MILL; PLAY SUPERVISED BY THE Y. W. C. A.

are almost too numerous to mention but they deal with every phase of the business, from the largest to the smallest. The possibilities of the work of the department are almost limitless. This department has the confidence of the workers and the confidence of the executives. It is the connecting link between employer and employe.

Recently the company built a large storehouse at the Washington Mill, a building of which the company and the workers are alike proud. But it appears that the handsome cement pillars reflected the sun's glare into the eyes of a few of the perchers at the mill. The perchers told the Department of Labor and the Department of Labor immediately rectified the trouble with a few cans of paint. This was a small matter but if affected the happiness of a few of those in the perching room. It was so small a matter that had there been no Department of Labor it might never have been called to anybody's attention and yet it might have resulted in eye strain for some of the perchers; it might have resulted in sickness; it might have resulted in ultimate rearrangement of machinery in the perching room at much expense. But the Department of Labor deals with the employes direct. They knew the cause of the trouble and the remedy was found at once.

The Department of Labor handles the question of wages. It takes care of adjustments of all kinds. It carries on the welfare work but it doesn't call it welfare work. It calls it "cooperative effort" work which makes greater happiness and comfort for the employes and greater efficiency for the company.

They are taking steps to get into intimate touch with their employes and are endeavoring through the Department of Labor to make all the conditions which surround all employes as pleasant and congenial as possible. Production is a cooperative process and the company appreciates Labor's part in the teamwork with Capital. No one man or small group of men working alone will ever accomplish much. All those concerned in the movement to bring about a better industrial condition of affairs must work together if big, constructive work is to be accomplished. Constructive thinking should be stimulated through confidence and open means of communication.

Every employe of the American Woolen Co. is invited—is urged— to lay his views and his opinions before the management and to write the management helpful and constructive suggestions as to how the management can be of greater assistance to him. Every one of the 40,000 or more employes has been asked to write the Department of Labor on what he believes to be the best plan for any worker to follow to lay matters before the executive branch of the company. Out of the thousands of suggestions which will be received, the company believes that it will be able to devise a new plan which will work to the benefit of all and a plan which will be original and made up of the best ideas of its army of employes.

Col. Evans is also editor of "The A. W. Employes Booster," a bright up-to-the-minute publication issued semi-monthly by the employes of the company working in the Lawrence mills. It is illustrated with cuts and cartoons, is full of personals, shop news and information for the workers.

President William M. Wood has long been a champion of the work to better conditions among the employes of the American Woolen Co. He has found an active ally in his daughter-in-law, Mrs. William M. Wood, Jr., of Brookline, Mass. Not only is Mrs. Wood a believer in the theory of better working conditions, but in the actual work of bringing better conditions about.

Nursery at Lawrence

The nursery established at the Wood Mill in Lawrence is one result of her activities, to which she has devoted much time and attention. Established as a war emergency measure in order that women with small children could patriotically assist in turning out supplies for the Government, the nursery has become a fixture through its aid to women with small children who, through force of circumstances, must earn their own livelihood. With the close of the war the company has endeavored to discourage women with other means of support from working in the mills, but there are many who must support themselves and their little ones, and to them the nursery is the greatest force for good in the community. There is an average of fifty-two children cared for on working days at this nursery. Women may work part time or full time and have their children cared for at the nursery. The children are cared for from infancy to the age of six years. Then they are old enough to enter school.

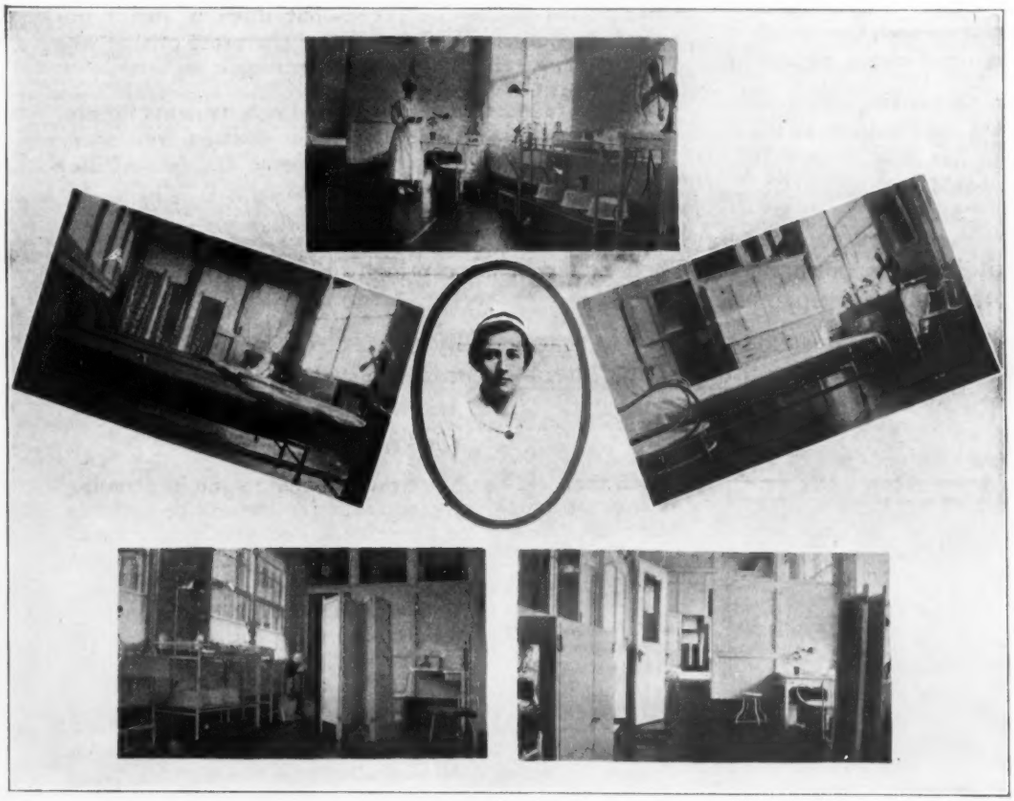
LAVATORY AND LOCKER ROOM IN A MODERN MILL

Buildings located near the mill, owned by the company and well suited for the nursery work were extensively remodelled to care for the little folks and have been furnished for their sole benefit. Kindergartens in charge of competent instructors care for the older children. Trained nurses care for the smaller ones. The toys are selected with care and are a feature of the nursery in themselves. The milk given the children comes from President Wood's farm, "Arden," at Andover. Mothers of the younger children are given rest periods when they may devote their time to their babies. Everything possible is done to make them contented.

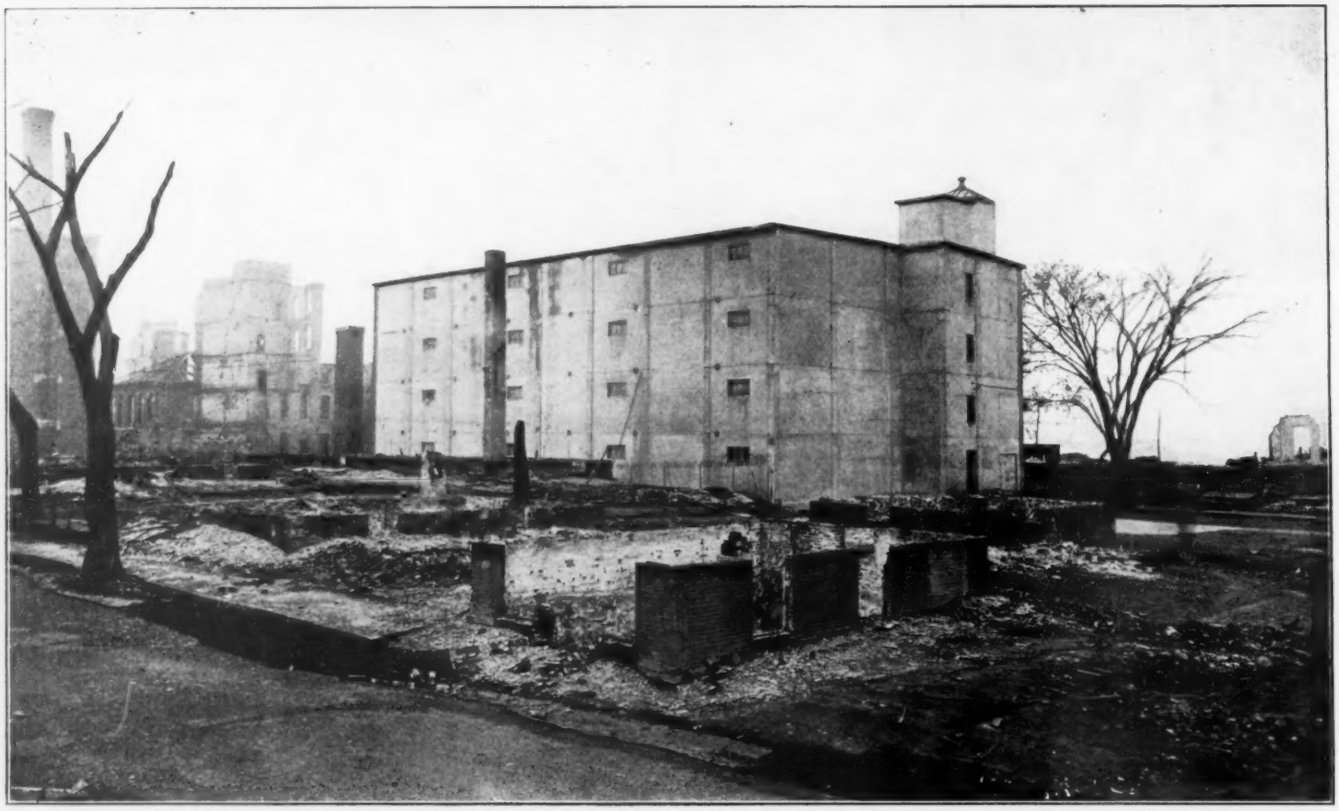
Wood Mill's Lunch Room

To feed a thousand persons at the noon hour is a task which the lunch

(Continued in Regular Section)



EMERGENCY DEPT. OF WOOD WORSTED MILLS, AND MISS HAZEL MACCULLOUGH, R. N., WHO IS IN CHARGE



There Was a Fire

—It came and went

The destruction it wrought at a New England cotton mill is graphically portrayed in the foreground, the middle distance at the left, and the background at the right.

It was no ordinary fire. Note its devastating effect on the trees; and how it leaped across the roadway at the middle right of the reproduction. See how cleanly it swept everything in its path that would burn.

And There Was a Concrete Building

—It stood its ground

All around it the fire raged—but there it stands unscathed. Concrete is fireproof and the proof of that was well demonstrated by this conflagration.

Concrete reduces danger to a building's contents by preventing fire-spread; prevents water damage from story to story; reduces danger of fire panic and loss of life; and secures lower insurance rates.

Concrete factory buildings are permanent. Their first cost is practically the last cost —no painting and practically no repairs being necessary.

Concrete offers a rapid form of construction and one that actually grows stronger with age. And—of special interest to textile manufacturers—*concrete structures eliminate production difficulties arising from vibration.*

The Atlas Portland Cement Company

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THE ATLAS PORTLAND CEMENT COMPANY

New York Boston Philadelphia Savannah
Chicago Dayton Minneapolis Des Moines St. Louis

Mill Construction

(*Continued from page 469*)

Mobile. The Standard Textile Products Co.; Alvin Hunsicker, pres.; W. E. Thatcher, treas.; J. T. Broadbent, agent, A. R. Cryer, supt.; drill, duck, sheeting; 200 foot addition to main mill; added 7,000 spindles, 300 looms; electric power. (Formerly Meritas Mills; changed from yarn to weaving mill.) (New York office, 320 Broadway.)

Thomson. Beaver Cotton Mills; $400,000; W. D. Couch, pres.; A. G. Couch, treas.; George Beverige, vice-pres.; J. R. Killian, gen. mgr.; drills and ducks; 10,000 spindles, 260 looms. (Taken over John E. Smith Mfg. Co.'s plant.)

White Hall. Whitehall Yarn Mills; $100,000; Hugh W. White, pres. and treas.; Henry P. Williams, supt.; cotton yarn; 5,000 spindles; electric power.

Indiana, Michigan City. M. C. Cot. & Textile Co., Carroll avenue and Rose street; $50,000; George Erickson, pres.; Albert J. Olson, supt.; woven nettings; four 58-inch looms; 2 sewing machines; electric power.

Kentucky, Louisville. Louisville Textile Company; $30,000; Philip S. Tuley, pres.; B. A. Forster, vice-pres. and gen. mgr.; Thomas S. Tuley, treas.; C. N. Poire, sec.; marquisettes and lace curtains; 20 looms; will add 20 looms in March. (Converse & Co., New York selling agents.)

Maryland, Chesapeake City. Beverly Textile Mills No. 2; John A. Bidwell, prop.; bath mats, table padding, blanket cloth, horse cotton netting, etc. (Main mill at Beverly, N. J.)

Havre de Grace. W. P. West & Son; Robert H. Harris, mgr.; E. Kelso, supt.; face cloths; 250 broad looms, 245 narrow looms; buy 12/1 cops, 20/2 warps; sell direct. (Plant at Bridgeton, N. J., discontinued.)

Massachusetts, Brockton. Brockton Webbing Co.; $25,000; Frank E. Packard, pres.; Horace A. Keith, treas.; shoe lacings, non-elastic narrow webbing; 75 narrow looms.

Cambridge. Wm. W. Edelstone Fabric Co., 25 Thorndike street; Wm. W. Edelstone, pres. and buyer; "Wedco" cotton fabrics; 2 electric cutting machines, 5 sewing machines.

Lowell. Churchill Mfg. Co., Inc., 146 Fletcher street and 287 Thorndike street; endless belts, ice creepers, shoe bindings, narrow tapes. (Formerly Charles N. Dyer.)

New Bedford. H. Oppenheimer Co., 85-87 Whitman street; H. Oppenheimer, pres.; M. Lipson, treas.; A. Oppenheimer, supt.; lace curtains; 11 spindles; 22 looms; will erect addition. (Taken over plant of La Fortuna Novelty Co.)

New Bedford. Waquoit Mill; William Whitman & Co., Inc., automobile tire cords; three-story mill, 688 x 188 feet; office building; picker room and boiler house; 70,000 spindles, 40 looms.

West Brookfield. Puritan Braid Co.; Arthur W. Scott, supt.; shoe laces; buy 30/2, 40/2, 8/3 peeler yarn.

Missouri, St. Louis. The Alox Mfg. Co., 1106 Cockrill street; cotton and mercerized shoe laces; intend to manufacture silk laces also.

New Hampshire, Penacook. New Hampshire Spinning Mills; $350,000; George M. Kimball, pres.; H. H. Dudley, treas.; George W. Rooney, supt.; cotton cords and yarns for fire hose; belts; 2,240 spindles; G. W. Rooney and F. E. Wattles, buyers. (Successors to Boscawen Mills.)

New Jersey, Jersey City. Ideal Quilting Co., 152 Lincoln street; $12,000; M. Weiner, pres.; I. Abrams, treas.; Wm. Goldweber, selling agent; quilting of all descriptions; 3 looms, 10 quilting machines; electric power.

New York, Johnstown. W. S. Becker; glove cloth mill; 8 looms; use 80s single yarns; piece dyeing and finishing machinery; electric power.

North Carolina, Avondale. Haynes Mills, Inc.; $300,000; Charles H. Haynes, pres.; Z. O. Jenkins, treas. and buyer; cotton cloth; 10,000 spindles, 300 looms; electric power. (Organized in 1918.)

Bessemer City. American Metal & Waste Co.; new mill, 150 x 250 feet; warehouse, 100 x 400 feet; 10s to 14s plied yarn and waste plant; 4,000 spindles.

Burlington. Consolidated Textile Corp.; F. K. Rupprecht, pres.; S. Prescott, treas.; H. C. Pollard, buyer. (Taken over Ossipee Cotton Mills and Hopedale Mills.) (Converse & Co., New York, selling agents.)

Cherryville. Rhyne-Houser Manufacturing Co.; $500,000; D. E. Rhyne, pres.; C. A. Rudisill, sec. and treas.; 50s and 60s cotton yarns; new mill; 5,000 spindles.

Connelly's Springs; Blue Ridge Cotton Mills; $100,000; B. M. Spratt, Jr., pres. and buyer; J. C. Heffner, supt.; new mill; cotton yarns; 2,500 spindles. (Office at Maiden, N. C.)

Gastonia. Dixon Mills; $200,000; J. M. K. Dixon, pres.; R. R. Ray, vice-pres.; A. M. Dixon, sec.-treas.; new mill, 250 x 125 feet; combed cotton yarns; 6,144 spindles; electric drive.

Gastonia. Myers Mills, Inc.; $450,000; A. G. Myers, pres. and treas.; 30s to 50s two-ply cotton yarns; 11,600 ring spindles, 2 mule spindles; electric power.

Gastonia. Rankin Mills, Inc.; $150,000; R. G. Rankin, pres.; Henry Rankin, vice-pres. and treas.; L. S. Rankin, sec.; 36s to 38s single hosiery yarn; 6,000 spindles; electric power.

Gastonia. Ridge Mills, Inc.; $300,000; R. G. Rankin, pres. and treas.; Henry Rankin, vice-pres.; L. S. Rankin, sec.; 80/2 cotton yarns; new mill, 300 x 100 feet; 6,500 spindles; electric power.

Gastonia. Ruby Cotton Mills, Inc.; $300,000; W. H. Adams, pres.; J. W. Carroll, vice-pres.; George P. Spencer, sec. and treas.; combed hosiery yarns; new mill; 6,000 spindles.

Gastonia. Victory Yarn Mills Co.; $1,000,000; C. B. Armstrong, pres.; A. K. Winget, treas.; combed peeler yarns; new mill, 400 x 127 feet; 16,000 ring spindles; electric power.

Grover. C. F. Harry; damask; erecting new mill, 130 x 72 feet; 40 looms; buys 20s carded yarn; will start operations in spring. (Tatum, Pinkham & Grey, selling agents.)

Kimesville. Kimesville Mfg. Co.; $50,000; Thomas Raby, Philadelphia, pres. and treas.; A. C. Havens, sec.; two-ply cotton yarns; 4,000 spindles. (Taken over White Mfg. Co.)

King's Mountain. Margrace Mills, C. E. Neisler & Sons, owners; bedspreads; new mill; 5,000 spindles; 100 looms; electric power. (C. F. Bailey & Co., New York, selling agents.)

King's Mountain. Park Yarn Mills; Sevier Cotton Mills Co.; R. Horace Johnston, pres. and mgr.; H. C. Long, Jr., sec.; J. L. Spencer, treas.; coarse carded yarns for weaving and insulated wire trades; 5,000 ring and 2,200 twister spindles. (Taken over Sevier Cotton Mills Co.)

Lenoir. Steele Cotton Mill Co.; $150,000; R. L. Steele, pres.; T. H. Broyhill, treas.; F. C. White, supt.; cotton yarns; 6,024 spindles.

Ronda. Ronda Cotton Mills, Inc.; $250,000; R. D. Grier, pres.; A. V. Foote, treas.; new mill; 5,000 spindles; electric power; will commence operations about April 1.

Rutherfordton. Grace Cotton Mills Co.; $300,000; B. J. Dobbins, pres.; W. A. Harrill, treas.; two-ply 30s to 40s combed peeler yarns; new mill, 300 x 125 feet; 6,000 spindles; electric power.

Shelby. Brison Mfg. Co.; R. Hope Brison, pres.; C. C. Coble, sec.; coarse cotton yarns; plant equipped with 3,600 spindles.

Stanley. Alba Manufacturing Co.; $100,000; John C. Rankin, pres.; R. F. Craig, treas.; A. J. Bumgarner, supt. (Taken over Lloyd Cotton Mills, Inc.)

North Wadesboro. Roaring River Yarn Mills; $150,000; W. J. Palmer, pres.; R. D. Grier, treas. and buyer; 10s to 20s hosiery yarns on cones; new mill; 4,200 spindles; start operations this month.

Ohio, Kent. Mason Cotton Fabric Co., 144 South Water street; O. M. Mason, pres.; $3,000,000; tire fabrics; new mill, 125,000 feet square; 10,000 spindles.

London. London Fabric Mills Co.; $150,000; M. B. Armstrong, pres.; H. M. Chaney, treas.; C. C. Earley, agent and supt.; tire fabric and heavy ducks; 44 looms; buy tire yarn 23/1; belting duck yarn 7/1 or 7/7 and 8/3. (Putnam, Hooker Co., Cincinnati, O., and New York, selling agents.)

Pennsylvania, Philadelphia. Supreme Winding Co., 2427 North Mascher street; George Klein, owner; commission winding.

Rhode Island, Apponaug. Narragansett Cotton Mills, Inc.; $200,000; Andrew E. Johnson, pres.; Adolf E. Johnson, treas.; Wm. D. Crawford, supt.; tire fabric and heavy ducks; new mill; 30 looms; electric power.

Cranston. Gleason & Karney Mfg. Co., 97 Berkeley street; braids, elastic and shoe laces; T. E. Gleason, buyer.

Hope Valley. Moscow Yarn Mill; $25,000; Ira Marens, pres.; A. O. Joslin, treas.; W. W. Taylor, supt.; 3,064 twister spindles, 72 looms. (Taken over plant of Joseph Taylor & Co.)

Pawtucket. J. M. Marshall Braid Co., 147 Brook street; J. M. Marshall, owner; braids and laces; new one-story mill, 60 x 40 feet.

Pawtucket. R. C. N. Mfg. Co., 381 North Main street; $50,000; A. L. Kelley, pres.; J. H. Conrad, treas. and buyer; shoe laces; 500 braiders.

Pawtucket. Victory Textile Co., 513 Mineral Spring avenue; M. C. Fogliano, supt.; cotton and silk goods on commission; 12 broad looms.

Providence. Townsend Braiding Co., Inc., 58 Wickenden street; J. Townsend Walker, pres. and treas.; L. C. Osborne, mgr.; braids and shoe laces; 400 braiders; electric power. (Succeeded Lull Braiding Co.)

Providence. What Cheer Braid Co., Inc., 150 Chestnut street; $125,000; Clarence Colvin, pres.; C. Ira Bigney, treas.; Howard I. Finn, sec.; Edward F. King, mgr.; braids of all kinds; specializing in shoe laces; 700 braiders; buy cotton yarns and wood fibre silk yarns 20/2 to 50/2 and 8/3 and 4. (Branch plant at Peace Dale, R. I.) (Taken over What Cheer Braid Co.)

Saylesville. Providence Novelty Weaving Co., 1 Cypress street; George Gingras, pres.; Oliva Gingras, treas.; corset cloth; 12 looms; buy 60/2, 50/2, 40/2-ply Sea Island and combed peeler yarns; E. de Grandmont, selling agent.

Valley Falls. Devontex Fabrics, Inc., 11 Broad street; $25,000; Michael Wallstein, pres.; N. E. Hyman, treas.; E. Grant Hayward, Jr., supt.; cotton cloth, silk and cotton cloth for corsets, shirtings and brassieres; 82 looms; buy 12s to 60s single, 20 to 120 two-ply, silk yarns of all kinds. (Devonshire Mills Co., Inc., New York, selling agents.)

South Carolina, Greenville. Mills Mill; $529,400; Allen H. Graham, pres. and treas.; M. R. Reeves, vice-pres.; S. A. Burts, gen. mgr.; fine twills and sheetings; 31,000 spindles, 816 looms. (Taken over Mills Mfg. Co.) (M. R. Reeves Dept., Harding, Tilton & Co., New York, selling agents.)

Greenville. Vardry Mills; Clifton Corley, pres.; W. C. DuPre, treas.; Luther M. McBee, Jr., purchasing agent; 4,320 ring spindles. (The Riddle Co., Philadelphia, selling agents.) (Took over Vardry Cotton Mills.)

Pendleton. Riverside Mfg. Co., No. 3; B. B. Gassett, pres.; S. H. Lander, treas.; J. T. Crawford, mgr. and supt.; 40/2, 50/2 combed yarns. (Formerly Pendleton Cotton Mills.) (Offices at Riverside Mfg. Co., Anderson, S. C.)

Spartanburg. Spartanburg County Mills; $500,000; John B. Cannon, pres. and treas.; R. P. Hamilton, supt.; 60/2 combed yarns; new mill; 12,000 spindles; electric power; will start operations March 1.

Walhalla. Keowee Yarn Co.; $80,000; W. A. Hetrick, pres.; leased building; 5,000 spindles; electric power.

Texas, Waco. Miller Cotton Mills; $500,000; Byron Miller, pres.; E. R. Nash, Jr., treas.; A. L. Agnew, supt.; denims; erecting mill; 7,500 spindles, 200 looms; dye; start operations about May 1.

Tennessee, Knoxville. Superior Mills; $300,000; C. M. Thomas, pres. and mgr.; M. D. Arnold, vice-pres.; Jesse Thomas, sec. and treas.; cotton thread; new mill, 250 x 135 feet; 5,000 spindles; electric power.

Wisconsin, La Crosse. Woven Cotton Padding Mills, Inc.; $15,000; H. Gundlach, pres. and buyer; F. H. Reimers, sec. and treas.; 8 looms, 3 cards, 1 picker. (Formerly Western Hammock Co.)

Canada, Ontario, Walkerville. Peabody's Limited; $1,500,000; W. J. Peabody, pres.; H. B. Peabody, treas.; E. M. Taft, Jr., supt.; denims; 3,240 spindles, 82 looms; electric power.

NEW WOOLEN MILLS

California, Oakland. Federal Wool Mfg. Co.; $2,800,000; Edwin P. Hulme, pres.; A. H. Breed, treas.; grading, sorting, carbonizing, carding, combing and spinning; erecting mill; start operations June, 1920.

Pasadena. Leeds Woolen Mills, Metcalf Building; organized to operate woolen plant. R. W. Kraft, 713 Camulos street; A. V. Fazenda, 415 Alpine street, proprietors.

Connecticut, Danbury. Danbury Felt Mills, Inc.; $25,000; felts for shoe purposes; two-story mill with wing, 35 x 38 feet; boiler room, 17 x 36 feet.

Danielson. H. D. Brooks & Co.; Albert Desilets, mgr.; commission burling and sewing.

Illinois, Chicago. Daniel Boone, 1735 Sixty-third street; $500,000; Oscar Gumbinsky, pres.; Nathan Gumbinsky, treas.; T. L. Boone, agent; J. Y. Hogg, supt.; purchased mill; men's wear; 15 sets of cards, 80 looms, 1 garnet, 9 pickers.

Maine, Camden. Penobscot Woolen Co.; $200,000; W. C. Rodgers, pres.; Ruel Robinson, treas.; woolen goods, men's wear and cloakings; new mill; dyehouse; 2 sets 60 x 60 cards, 22 looms, 1,020 spindles; electric power.

Massachusetts, Clinton. Clinton Wool Comfort Co., 25 Sterling street; wool filled bed comforters and wool batts; 5 machines.

Franklin. Franklin Woolen Co.; $30,000; G. Harris Cochrane, pres.; Willard H. Andrews, treas. and buyer; kersey linings; 4 sets of cards, 2 needle looms, 3 pickers.

Hyde Park. Hyde Park Mills, Hartmann Bros., Inc., props.; Max Hartmann, assist. gen. mgr.; Victor Thullis, plant mgr.; Lester S. Chilson, supt.; wool pullers, commission scouring and carbonizing; top manufacturers.

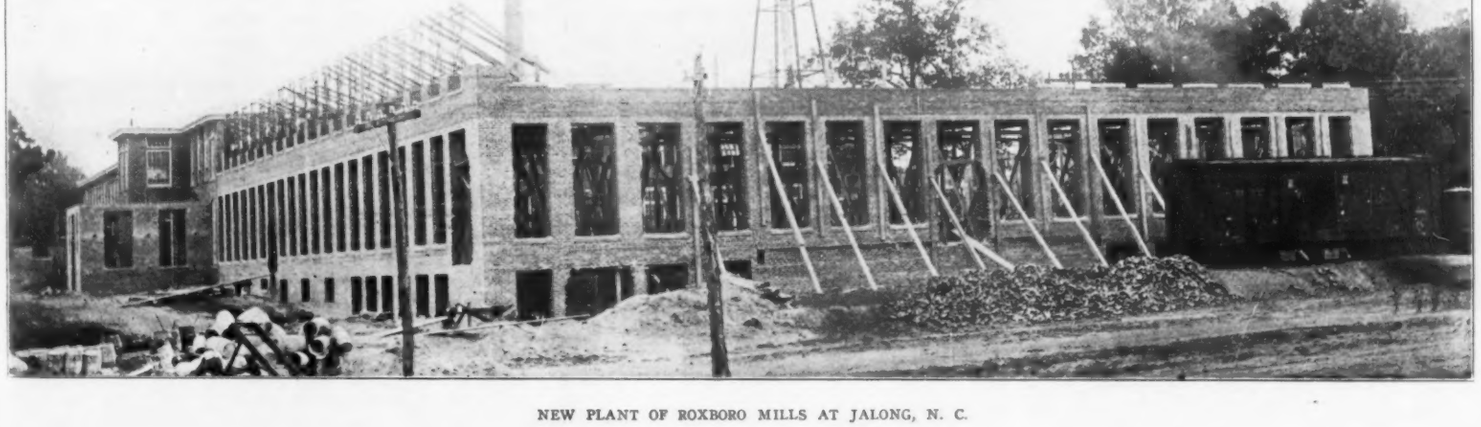
Lowell. E. J. Hylan Textile Co., 341 Middlesex street; E. J. Hylan, prop.; commission weaving; 26 broad looms.

South Natick. Indian Spinning Mills, Inc.; $50,000; Patrick H. Walsh, pres.; Harold P. Cooley, treas., agent and supt.; woolen, merino and silk noil yarns of all counts; electric power. (M. G. Baldwin, 184 Summer street, Boston, selling agent.)

New Hampshire, Peterboro. Purity Wool Preparing Co.; $20,000; Joseph T. Bishop, pres. and treas.; Richard J. Hackett, supt.; wool scouring and dyeing; erecting mill and dyehouse; electric power.

New Jersey, Camden. Highland Worsted Co., Ninth and State streets; Thos. H. Ball, pres. and treas.; Frank H. Benrath, assist. treas. and sec.; E. O. C. Hill, supt.; 2/30s-2/50 yarns; 17,205 spindles; electric power.

Phillipsburg. Huntington Textile Co., Ltd., 494 South Main street; T. S. Pursel, Jr., pres.; two-story mill, 32 x 52 feet; broad



NEW PLANT OF ROXBORO MILLS AT JALONG, N. C.

Aladdin

Roanoke Mills Co. Consult Aladdin Instead of Doctor

Besides a costly labor turnover, causing a lessening of production, the Roanoke Mills Co. had a health problem to solve. Instead of calling in a doctor the Aladdin Company was consulted. After going into the proposition thoroughly an order for 50 Aladdin Houses was placed. Within a few weeks construction work had started. Before all the fifty houses had been erected another order for more Aladdin Homes was placed. Nearly a hundred Aladdin Houses have been erected by this one concern. The saving in time and waste of materials was recognized. And since the housing conditions have been improved, health conditions in the Roanoke community have been bettered nearly one hundred per cent.

Housing Your Men Well and Quickly at Lowest Costs

The Aladdin System of Construction saves 18 per cent of the lumber wasted in ordinary building. Standardization and quantity production further reduce the building cost approximately 30 per cent to you. Also you benefit by Aladdin's stupendous purchasing power. Aladdin houses are easily and quickly erected by unskilled labor. Simple, complete instructions are furnished with each house.

The Aladdin System and Plan

Aladdin houses are Readi-cut. Every piece of joists, studs, rafters, sheathing, siding, flooring, interior finish is cut to proper size, marked and numbered ready to nail in place. Sufficient material to complete more than 3000 houses is carried constantly in stock ready for instant shipment. Depending upon size of house, we load from one to three complete houses in each car.

Quicker Delivery from Our Five Mills

Aladdin houses are manufactured and shipped direct from the Aladdin Company's own mills in Michigan, North Carolina, Oregon, Mississippi and Canada. Aladdin houses come to you in a straight line from the nearest timber region. Aladdin's Industtial Homebuilding Service means shorter routes, quicker delivery and lower freight rates for builders in every part of the United States. Three days to a week are saved in shipments reaching destination. Complete Sales and Business Offices are maintained in connection with each mill. Fully 24 hours' time is saved in your mail reaching our offices.

Single House or Complete Cities

We will quote you a definite price on a single house or complete cities of 300, 500, 600, 1500 and 3000 population. These cities include homes, stores, churches, schools, offices, etc. Several cities are now graphically presented in our book, "Industrial Housing." Write, wire or phone for Book No. 1860.

The Aladdin Co. *Offices and Mills at* { Bay City, Michigan
Wilmington, North Carolina
Hattiesburg, Mississippi
Portland, Oregon
Toronto, Ontario

Industrial Housing

cloth, woolen, worsted goods and blankets; 10 looms; electric power.

New York, Johnstown. Woolskin Novelty Co., West Decker street; gloves and mittens made from sheepskins tanned with the wool on.

Little Falls. Little Falls Felt Shoe Co.; J. E. Stacey, pres.; Frank F. Stacey, treas.; felt slippers; employ 600 operatives.

Milton. Milton Woolen Mills; D. J. Brown, pres.; purchased mill of A. T. Skerry & Co.; cotton worsteds; 40 narrow looms.

Troy. George E. Smith Yarn Mill, Ingals avenue and President street; leased plant; erected storehouse; custom yarn, woolen system; 2,000 spindles, 6 sets woolen cards; electric power.

Waterford. Waterford Yarn Co.; $50,000; Henry J. Steinberg, pres.; David Shikes, treas.; Timothy Moore, supt.; purchased mill; woolen and merino weaving, knitting and carpet yarns; 5 cards; 5 mules, 4 winders, 2 spoolers.

Oregon, Portland. Oregon Worsted Co.; $300,000; E. B. McNaughton, pres.; J. A. Zehntbauer, treas.; Roy T. Bishop, buyer; 26s two-ply to 5s 4-ply yarns and worsted fabrics; 2,200 spindles, 80 looms; electric power. (Operates Multnomah Mohair Mills.)

Pennsylvania, Allentown. Rising Sun Co.; Charles Fletcher, prop.; John J. Kelly, sec.; E. J. Fielder, supt.; fine Australian Worsted serges; 62 looms. (Taken over business of Allentown Woolen Co.)

Downington. Downington Woolen Mills; Charles W. Havens, owner; woolen, merino and silk mixed yarns; 5 sets of cards, 4,320 mule spindles; electric power. (Two Philadelphia plants of Chas. W. Havens & Son, combined in the Downington Woolen Mills.)

Philadelphia. Brooks Bros. Co., Inc., 4841-49 Lancaster avenue; $150,000; Marshall H. Brooks, pres.; John W. H. Brooks, treas. and buyer; upholstery goods; new mill; 60 looms; electric power; buy 80/2, 40/2, 30/2 warps; 50/1, 8/1, 6/1, 5/1, 4/1, yarns.

Philadelphia. Collins & Aikman Co., Fifty-first street and Columbia avenue; three-story mill, 71 x 160 feet. (Formerly at Manayunk, Philadelphia.)

Philadelphia. Griffon Company, Adams and Wingohocking streets; three-story mill, 63 x 241 feet.

Philadelphia. Kaufman Plush Co., Westmoreland and Boudinet streets; H. Kaufman, owner; plushes for furniture upholstery and women's wear; 12 looms; buy 1/20, 1/14, 1/16, 2/24, 2/30, 2/20 yarns; electric power.

Philadelphia. Philadelphia Shoddy Mfg. Co., 4534-4542 Hodge street, Frankford; Thomas Henry, Jr., pres. and treas.

Rhode Island, Greenville. Earlston Worsted Mills, Inc.; $250,000; J. B. Kirkaldy, pres.; J. L. Rubenstein, treas.; R. S. Dunn, supt.; fine grade men's and women's wear; 40 woolen looms, 40 worsted looms; buy 2/40s and 2/50s worsted yarns. (Took over Namquit Worsted Company's plant.)

Providence. Rhode Island Worsted Co., Inc., Valley street; $30,000; George Bieber, pres.; Frank Mackie, treas. and mgr.; 26s, 28s and 32s two-ply worsted yarns; 1,152 spindles.

Woonsocket. Philmont Worsted Co.; $2,000,000; Theophile Guerin, pres.; N. B. K. Brooks, treas.; worsted and woolen yarns, wool, tops, noils, silk; new four-story mill; 10,000 spindles, 6 combs; electric power. (N. B. K. Brooks, 185 Summer street, Boston, selling agent.)

Canada, Ontario, Almonte. Wm. Thoburn; new mill to replace burned structure; 4 sets of cards, 15 looms for manufacturing flannels.

Arnprior. Kenwood Mills, Ltd.; mill felts and sleeping bags; added 14,000 feet of floor space. (Took over plant of Griffith-McNaughton, Ltd.; branch of F. C. Huyck & Sons, Albany, N. Y.)

Hamilton. Porritts & Spencer, Ltd.; $100,000; W. Spencer, pres.; J. K. Spencer, vice-pres.; J. Bavis, sec.; H. J. Smith, supt.; pulp and paper makers' felts; electric power; sell direct.

Toronto. Aked & Co., Ltd., 1067 Ossington avenue; $400,000; Thomas O. Aked, pres.; Cyril S. Jackson, supt.; worsted yarns up to 26s two-ply, floss and fringing yarns; two-story mill, 100 x 100 feet (Bradford system); electric power. Started building in 1918.)

Quebec, Coaticook. Walter Blue & Co., Ltd.; men's wear; will use product for manufacture of "Art Kraft" clothes. (Took over Coaticook Woolen Mill.)

NEW KNITTING MILLS

Connecticut, New Britain. H. O. W. Corp., 19 Court street; Williard C. Oquist, pres.; Gardner C. Weld, treas.; A. G. Hawker, sec.; men's Shaker and coat sweaters and knit novelties; 5 knitting machines, 2 loopers; buy 2/9s-2/12s-6½ quality worsted yarns, 2/20s, 2/24s wool yarns.

New Haven. Winona Mills Company, 18 Wooster street; $300,000; R. J. Kennedy, pres.; R. S. Rose, buyer; men's, women's and children's hosiery and sweaters; buy combed peeler, combed S. I., mercerized Jap tram silk, French and Bradford worsted yarns. (Consolidation of Columbia Hosiery Co. and Winona Underwear Co.)

Watertown. Hudson Hosiery Co.; 30-240 needle Banner machines, loopers and welters.

Georgia, McDonough. E. M. Copeland, of the Copeland-Turner Mercantile Co., erecting plant.

Illinois, Red Bud. Chester Knitting Mills; will start plant this month for manufacturing children's hose; 40 knitting machines. (Branch of St. Louis, Mo.)

Millstadt. Chester Knitting Mills; combed peeler ribbed top ladies' hose; 18, 220-needle knitting machines; will install machines for children's hosiery. (Branch of St. Louis, Mo.)

Indiana, Indianapolis. Goodman Hosiery Mills, 614-625 North Noble street; James H. Brinsley, supt.; new mill; ladies' 260 gauge silk hose, misses' 300 needle stockings; 100 knitting, 6 sewing machines, 12 loopers; buy 40/2, 60/2, 70/2, 80/2, 70/1, 80/1 mercerized yarns. (Branch of Burlington, N. C., Mills.) (Office at Indianapolis.)

Kentucky, Paducah. Priester Hosiery Mills, Ninth street and Kentucky avenue; B. J. Priester, owner; leased building; 90 knitting, 25 loopers, 90 ribbers; buy silk, lisle, mercerized and combed peeler yarns all sizes.

Maine, Millbridge. Millbridge Knitting Mills Co.; $10,000; E. W. Bragnall, pres.; J. F. Leighton, treas.; stockinette sweater, hosiery; new mill; buy woolen, worsted 2/8s to 2/24s yarns.

Massachusetts, Boston. Washington Knitting Mills Co., 119-127 North street; Frank Cohen, pres.; jobbers' Jersey cloth, men's and youth's sweaters, bathing suits, etc.; buys 2-18s, 1-26, 1-30 and 2-10s yarns; electric power.

Hyde Park. Kapo Mfg. Co.; William T. Maher, pres.; Charles Garrison, treas.; Proctor Chandler, gen. mgr.; knitted products; dye and finish; buy wool and worsted yarns. (Ethan Allen, New York, selling agent.) (Main office, 16 Harcourt street, Boston.)

Malden. Revere Knitting Mills, Inc., 263 Bryant street; $50,000; Hyman Solomon, pres.; Bertram E. Green, treas.; David Hillson, supt.; high grade shaker sweaters; 10 knitting machines, 3 loopers; buy 2/18 worsted 2/20 wool yarns. (E. Klein & Co., New York, selling agents.)

Pittsfield. George W. Goethals & Co., New York, purchased controlling interest in W. E. Tillotson Mfg. Co. and Victory Textile Co.; C. S. Jennison, pres.; R. H. Whitelead, vice-pres.; I. G. Blauvelt, treas.; C. M. Bowes, mgr.; A. B. Swallow, agent.

East Templeton. Templeton Mills; $25,000; T. T. Greenwood, 40 Court street, Boston, pres.; John L. Anderson, treas.; fine quality women's mercerized hosiery; Banner machines, loopers, welters and sewing machines; developing plans for manufacturing new process of shaped hosiery; electric power.

Michigan, Grand Rapids. Mather & Palmer; $120,000; John D. Case, pres.; Walter S. Palmer, treas.; Carl N. Mather, supt.; men's union suits; new mill; 25 knitting, 50 sewing machines; buy 1/12s yarn; electric power. (Camps Corporation, New York, selling agents.)

New Jersey, Elizabeth. Royal Knitting Mills, Sixth and Fulton streets; $90,000; Nathan Schwartz, pres.; Lionel Kremer, treas.; jersey cloths for men's and women's wear; 100 knitting and 100 sewing machines. (Knitted Textile Corporation, 150 Madison avenue, New York, selling agents.) (Took over plant of Jos. W. North.)

Hoboken. Breman Knitting Mills, 311 Washington street; V. G. Breman, buyer.

Montclair. E. Loesser Mills, Inc., 142-144 Pine street; $50,000; E. Loesser, pres.; E. W. Loesser, treas.; E. M. Schenke, supt.; men's, women's and children's hosiery; 100 knitting machines, 25 loopers; dye house; electric power; use 16s and 60s singles combed peeler, 30s and 40s two-ply and 80s single combed peeler mercerized yarns; sell direct.

Newark. Newark Hosiery Co., Inc., 84 Thirteenth avenue; $25,000; Emil A. Kern, pres.; T. L. R. Crooks, treas.; F. Falk, supt.; samples of men's half hose, ladies' hose in mercerized silk and plaited; 30 knitting and 4 sewing machines, 4 loopers.

Washington. Pohatcong Hosiery Mills, Inc., 64 Youmans avenue; Oscar E. Merkel, pres. and treas.; silk hosiery; 18 full fashioned knitting machines; use mercerized cotton and raw silk yarns.

West Hoboken. Palisade Hosiery Mills, 712 Monroe place; $25,000; Stephen H. Simsarian, pres., agent; Chas. Karogosian, treas.; ladies' silk and mercerized hosiery; 180 spindles; 30 knitting, 4 sewing, 4 loopers, 9 winding and coneing machines; dyeing and finishing plant. (Taken over the Simsarian Hosiery Mills, 487 Central avenue, West Hoboken.)

New York, Brooklyn. Forest Knitting Mill, 718 Forest avenue; Herman Bischoff, pres.; ladies' and infants knit goods; new mill; 4 knitting, 2 sewing machines, 1 looper.

Brooklyn. Silk Knitting Mills, Inc., 301 Division avenue; $15,000; Frank Navran, pres.; Hyman Goldberg, treas.; jersey cloth; 6 knitting machines.

Cohoes. Sangamon Mills, Columbia street; Daniel J. Cosgro, prop.; Joseph Farrell, supt.; leased building, 30 x 40 feet; knit tubing, wash cloths, towels, bibs, etc.; 15 latch needle and 10 sewing machines; electric power.

Fonda. Barney Galinsky & Sons Co., Bridge street; $50,000; Barney Galinsky, pres.; Louis E. Galinsky, treas.; Leon Laurent, supt.; cotton, worsted and silk knit fabrics; 20 knitting machines; buy from 9/1 to 50/1 combed and carded, 1/26s-1/30s worsted yarns; also various silk yarns; electric power.

Fort Plain. William B. Shults, Center street; W. B. Shults, buyer; jersey, astrachan and duplex gloves; 90 sewing machines. (Succeeds Otsquago Glove Co., Inc.)

Gloversville. Comfort Knitting Company, Inc.; knit gloves and yarn for same; erecting new mill. (Branch of Johnstown, N. Y., plant.)

Hamburg. Moss Knitting Co., Inc.; $25,000; Ellsworth E. Moss, pres. and treas.; sweater coats, gloves and wool hosiery; 4 knitting, 4 sewing machines.

Long Island City. Propper Silk Hosiery Mills, Inc.; $100,000; Leo Propper, pres. and treas.; 240 full fashioned, 6 sewing machines; buy 100/2-50/2 and Japanese tram yarns; electric power.

Mount Morris. The Perry Knitting Co.; finishing plant. (Branch of Perry, N. Y., Knitting Co.)

New York. Art Braid Co., 21 Bond street; $10,000; Michael Gerson, pres. and buyer; Pincus Seigler, treas.; knitted braids and trimmings, tinsel threads, tubular laces; 1,000 spindles, 10 knitting, 2 tubular and 30 braiding machines; electric power; use 40s, 20s, 10s and 3s two-ply yarns and 151 and 30 dernier artificial wood silk and tinsel and metal threads.

New York. Besco Knitting Mills, 193-195 Greene street; $15,000; H. Eadelman, pres.; J. T. Rosenson, treas.; ladies sweaters and fancy knit goods; 13 knitting, 2 sewing machines.

New York. F. H. Brayton Co., Inc., 163 Greene street; $25,000; F. H. Brayton, pres. and buyer; knit tubing; 36 knitting machines; use 28s, 30s and 36s singles combed or mercerized yarns bleached and unbleached; electric power.

New York. Flur Bros. & Wasserman, 135 Bleecker street; knitting, braiding and chenille plant; 3 chenille, 2 knitting, 24 braiding machines; electric power; buy artificial silk and 40s two-ply mercerized yarns. (Louis Flur, buyer.)

New York. B. Ganim & Bro., 55 Washington street; tricolettes, scarfs, knitted ties and novelties; new mill; 48 cotton spindles, 72 silk spindles, 12 latch needle knitting, 4 overseaming machines, 12 necktie machines; buy art silk, tram and twist, mercerized and cotton 30/2 to 60/2 skeins, 150/300 D; electric power; sell to jobbers only.

New York. Louis Hoffman & Co., Inc., 12-14 West Twenty-first street; $25,000; Louis Hoffman, pres. and buyer; infants' knit goods; use 18s, 20s and 20s two-ply yarns.

New York. M. & H. Knitting Mfg., Inc., 334 Fourth avenue; W. Hochman, pres.; Israel Mendelson, treas.; knit goods; buy all sizes of yarns.

New York. P. C. Silk Hosiery Mills, Inc., 220 Fifth avenue; $100,000; Leo Propper, pres.; Saul Cohn, vice-pres. and treas.; full fashioned silk hosiery.

New York. Ross Knitting Mills, Inc., 16 East Seventeenth street; $100,000; Sydney R. Ross, pres. and treas.; Frank L. Vrooman, supt.; Jersey cloths and knit fabrics; 1-40 end winder, six knitting machines; buy French spun worsted 1/26s and 250s yarns; electric power.

New York. Ruby Knitting Mills, 7 Great Jones street; women's novelty sweaters and sport suits; sell jobbers.

New York. Ruth Knitting Mills, 752 Myrtle avenue; silk sweaters and knit novelties; 12 knitting, 8 sewing machines; use silk and cotton yarns in 2-40s combed peeler.

New York. Sanford Knitting Corp., 141 Wooster street; $25,000; Sanford M. Salke, pres. and treas.; infants' knit underwear; 10 knitting and 15 sewing machines.

New York. Yourchois, Inc., 138-142 West Twenty-seventh street; $10,000; J. Trackenberg, pres.; Saul M. Siegel, buyer; men's, ladies', children's, infants' sweaters, and bathing suits. (Will be located at 43 West Twenty-fourth street after February 1.)

Oswego. The "B. & P." Footwear Co., Inc., 11-18 West Cayuga street; $200,000; H. Irving Pratt, pres. and treas.; M. W. Brooks, supt.; elderdowns and fleece linings slippers, rubber and boot sox; 2 knitting, 75 sewing machines; electric power; sell direct.

Schenectady. Gloversville Knitting Co.; Charles Beilinger, supt.; new mill; in-

From a drawing by R. J. Shutting, Chattanooga, Tenn.

MILL AND VILLAGE OF PACOLET MFG. CO., NO. 4, INCLUDING RECREATION HALL ERECTED AT COST OF $100,000 AND AUDITORIUM; LARGE EXPENDITURE BEING MADE FOR NEW COTTAGES, SEWAGE SYSTEM, ETC; PRESIDENT VICTOR M. MONTGOMERY IS GIVING DEVELOPMENT HIS PERSONAL ATTENTION

THE QUICK, ECONOMICAL WAY TO BUILD FACTORIES AND HOUSES

"Circle A" Buildings—in interchangeable units—are shipped promptly upon order and followed by our car tracers until they reach destination. They are erected without the slightest difficulty in a few hours, either for permanent or temporary needs; factories and houses, schools, recreation halls, churches, hospitals, storage rooms, etc.—in fact, an entire town if desired. There is no painting to be done, no hardware to be attached, no nailing whatever required; simply assemble and bolt, the only tools required being hammers, wrenches and screwdrivers.

And "Circle A" Buildings are dismantled, without damage, just as easily as they are erected. Thus, although erected for permanency, they are also portable, with a salvage value of 100%; the same units can be used interchangeably, again and again, on the original site or shipped as often as desired to other locations.

"Circle A" interchangeable unit buildings are manufactured complete in the large modern factories of The Alexander Lumber Company to meet individual requirements. No matter how big or pressing your industrial-housing problem may be, our Engineering Department is equipped to help you solve it quickly and economically. For further information write or wire our nearest office—Chicago, Monroe Bldg.; New York, Postal Telegraph Bldg.; and Fort Worth.

THE ALEXANDER LUMBER COMPANY

"CIRCLE-A"

(Patents Pending)

INTERCHANGEABLE UNIT BUILDINGS

stalled 75 flat bed fingering machines and several hand machines. (Branch of Gloversville (N. Y.) plant.)

Yonkers. Chapman Knitting Mill, 788 McLean avenue; Philip Chapman, prop.; L. Lewis, supt.; jersey cloth and bathing suits; new two-story mill; 35 knitting cylinders, 20 sewing machines; use 1/26, 2/26, 2/18, ⅜ and ½ blood yarn.

North Carolina, Asheville. Asheville Knitting Mills, Inc., Haywood road and Buffalo street; $11,900; D. B. Mull, pres.; H. G. Alexander, vice-pres.; W. Y. Frazier, sec. and treas.; fine seamless hosiery; 93 knitting and 3 sewing machines, 18 ribbers, 7 loopers; finish; electric power; sell to jobbers and retailers.

Cherryville. Hoyle Knitting Mills; J. C. Hoyle, prop.; men's half hose, "Hoyle's Honest Hosiery"; 20 knitting machines; electric power.

Creedmore. Granville Hosiery Mills Co.; $50,000; G. H. Dove, pres.; N. J. Boddie, treas., sec. and mgr.; men's and women's 176 and 184 needle hosiery; 80 knitting, 4 sewing machines, 10 ribbers and 15 loopers from the Regina Hosiery Mfg. Co.'s plant, Haw River.

High Point. Dillon-Kearns Underwear Co.; $100,000; H. C. Kearns, Jr., pres.; P. M. Dillon, treas.; leased mill; men's athletic underwear. (William Iselin & Co., New York, selling agents.)

Shelby. Carpenter-Barber Hosiery Mills; consolidation of Carpenter-Barber Hosiery Mills and Lihon ac Hosiery Mills Co.; R. E. Carpenter, pres.; L. E. Lignon, vice-pres.; W. R. Newton, sec., and treas.

West Durham. Tar Heel Hosiery Mills, Inc.; $250,000; J. S. Carr, Jr., pres.; W. F. Carr, treas.; C. D. Porter, supt.; 100 200-needle half hose and women's stockings knitting machines, 25 loopers. (Reorganization of Pilot Hosiery Mills.)

Ohio, Cleveland. Strong-Maxwell Co., Lakeside avenue; E. P. Strong, pres.; George M. Strong, vice-pres.; Joseph Laronge, treas.; Walter Maxwell, sec.; juvenile, boys' and misses' sweater coats; tricolette cloth; 40 knitting, 20 sewing machines; sell direct to jobbing trade only.

Dresden. Dresden Woolen Mills Co.; $40,000; Wm. E. Patterson, pres. and treas.; John H. Miller, supt.; ladies' flannels and skirts, men's wool half hose; 4 sets of cards, 22 knitting machines, 4 loopers.

Pennsylvania, Allentown. Knit Fabrics Co., 19 South Hall street; N. C. Newhart, supt.; knit goods of every description, Jersey cloth, heathers, silvertones, velours for men's and women's trade; 160 spindles, 20 knitting machines.

Ephrata. Hayden B. Brubaker, 23 Chestnut street; children's cotton ribbed hosiery; 4 ribbers, 4 footers, 2 loopers; electric power; finish; buys 16s and 18s combed peeler and 30s carded yarns.

Ephrata. Kachel, Lenhart Co.; $20,000; Sol Lenhart, pres. and treas.; Paul F. Kachel, supt.; cotton hosiery; 60 knitting, 2 sewing machines, 8 loopers; buy 16s to 60s yarns; electric power.

Greencastle. Greencastle Knitting Mills; H. A. Bitner; hosiery; finish; electric power; buy silk yarn, 10 to 12 strand; 22s to 60s two-ply mercerized and 22s and 36s single combed Egyptian.

Honesdale. Branley Knitting Company; $20,000; Fred W. Kreitner, pres.; W. Brock Lesher, sec.; Charles A. Emory, treas.; Harry Branley, supt.; women's, misses' and children's staple and novelty knit goods; 10 knitting, 6 sewing machines; buy 2/16 and 2/18 worsted and zephyr yarns; electric power.

Lock Haven; Twintex Underwear Corp.; 50 sewing machines. (Branch of Milton, Pa., plant.)

Milton. Twintex Underwear Corp.; $200,000; Edward Hecht, pres.; Henry Myers, treas.; balbriggan and mesh underwear; purchased plant of West Branch Knitting Co.; operating 70 knitting, 175 sewing machines.

Manayunk, Philadelphia. Akmi Fabric Co., 108 Levering street; $10,000; James Hindle, pres.; novelty worsted, woolen and cotton cap cloth; 5 looms; use 12 and 30s two-ply, 8s single cotton and 10 to 20 cut. (Lewis & Ullman, N. Y., selling agents.) (Formerly Arlington Knitting Mills, Inc.)

Philadelphia. Angora Knitting Mills, 908-910 North Seventh street; Louis Sitkoff and Jacob Feldman, props.; men's and women's woolen and worsted sweater coats; 15 power and hand knitting machines, 12 sewing machines; buy 20 and 18s two-ply zephyr, 26s and 30s two-ply worsted yarns.

Philadelphia. Bla-Shone Hosiery Corp., 2008 North Second street; $301,000; Charles C. Schoneman, pres. and sales mgr.; Jacob H. Blaetz, treas. and gen. mgr.; misses' fine rib hosiery; 35 ribbers, 40 footers.

Philadelphia. Elk Knitting Co., Norris and Tenth streets; $150,000; Harry Nelke, pres.; D. F. Nelke, vice-pres.; Herbert L. Nelke, treas. and buyer; women's and children's ribbed underwear in cotton, lisle, wool and silk; 80 sewing, 70 knitting machines; finish; buy cotton, lisle, silk and mercerized yarns; sell direct. (Succeeded H. L. Nelke & Co.)

Philadelphia. Gehris Hosiery Co., Laurence and Bristol streets; Earle M. Gehris, supt.; women's mercerized and cotton seamless hosiery; new mill; 21 knitting, 2 sewing machines, 4 loopers; buy 2/60s mercerized, 1/24s, 1/80s and 1/40s cotton yarns. (Taken over Cliveden Mills Co.)

Philadelphia. Largman, Gray Co., 3360-64 Frankford avenue; $150,000; Joseph Largman, pres.; Harry Largman, treas.; Otto M. Schuester, supt.; Willford Gray, buyer; full fashioned silk hosiery; new mill; electric power; start operations in March.

Philadelphia. Mutual Hosiery Mills, Inc.; $300,000; Reinhard Huettig, Paterson, N. J., pres.; Hugo Huettig, treas.; women's full fashioned silk hosiery; new mill; 720 full fashioned machines.

Philadelphia. Quaker Hosiery Co.; $500,000; Charles S. Bromley, pres.; Henry S. Bromley, treas.

Philadelphia. Rogers Hosiery Co., Wakefield and Ashmead streets; Clarence F. Rogers, pres.; John C. Beagary, vice-pres.; John Bromley, sec. and treas.; fine gauge hosiery for women; 125 spring needle knitting machines.

Philadelphia. Sylco Knitting Mills, $100,000; Michael Rummel, pres.; Geo. Rummel, treas.; Wm. Rummel, supt.; ladies' mercerized mock seam hosiery; 60 knitting, 6 sewing machines; 6 loopers.

Pottsville. Artistic Knitting Mills, Inc., Washington street; $20,000; A. Straub, Jr., pres.; Maud I. Boltz, treas.; 14 cut vests and union suits; buy 38 combed peeler yarn. (Richard S. Lilienthal, selling agent.)

Reading. Metric Hosiery Mills, Inc., Eleventh and Marion streets; $10,000; F. M. Kalbach, pres. and mgr.; Nathan Feiberbaum, treas.; men's and women's hosiery; electric power; use 40s, 50s, 60s, 70s two-ply combed peeler mercerized yarns.

Reading. Schuylkill Hosiery Mills, Inc., Third and Greenwich streets; $50,000; Frank W. Robinson, prop.; ladies' silk hose; 40 knitting, 5 sewing machines, 4 loopers. (David Jacobs, New York, selling agent.)

Reading. Wergan Knitting Mills; Werner & Gauter, props.; bathing suits and children's underwear; new mill; buy 12/1 and 13/1 double carded yarn; electric power.

West Reading. De-hi-wa Knitting Mills, Chestnut and Yarnell streets; E. P. Wanner, pres.; A. P. Heist, vice-pres. and mgr.; I. A. Deisher, sec. and treas.; women's cotton underwear, union suits and vests; 13 knitting, 10 sewing machines; use 38s combed peeler yarns. (Wrights Underwear Co., selling agents.)

Stroudsburg. Stroudsburg Textile Co.; $20,000; Henry F. Johann, pres.; Francis P. Somers, treas.; wool, Jersey cloth and other knit specialties; leased new mill; 5 knitting machines, 1 winder; buy 26s, 2/26s heather and plain yarns and art silk.

Rhode Island, Woonsocket. Fairlawn Knitting Co.; $50,000; yarns, hosiery and knit goods. (Taken over Eden Knitting Co.)

Tennessee, East Chattanooga. Champion Knitting Mills; $15,000; Walter C. Champion, pres.; J. O. Dills, gen. mgr.; men's half hose, 220 needle, mercerized and silk; 35 knitting machines, 8 ribbers, 8 loopers.

Chattanooga. Browning Hosiery Mills; $50,000; D. P. Browning, pres.; George F. Browning, sec. and treas.; ladies' mercerized hose. (James Jamison & Co., New York, selling agents.) (Formerly Davis Bros., Inc.)

Chattanooga. Southern Hosiery Mills; $100,000; W. H. Cummings, pres.; Sam J. McAlister, treas.; Will McAlister, supt.; children's hosiery; new mill; 50 knitting 2 sewing machines, 15 loopers, 200 ribbers; buys 12s to 40s combed yarns; electric power. (Cotton States Hosiery Mills, selling agents.)

Chattanooga. Wardlaw Hosiery Mill; $100,000; J. R. Wardlaw, pres. and treas.; misses' combed peeler and mercerized 300-needle hosiery; leased mill; 100 knitting machines.

Jasper. A. R. Pryor; misses' and women's hose; new mill; 50 knitting machines, 10 loopers; buy 30s to 40s two-ply mercerized and combed peeler yarns; electric power.

Knoxville, Knox Hosiery Mill; $40,000; O. A. Knox, pres.; John G. Hearring, treas.; J. D. Pickell, supt.; 53 knitting machines, 10 loopers; dye; buy 40/2, 50/2, 60/2 and 60/1 mercerized yarns.

McMinnville. Read Hosiery Mills; $200,000; Samuel R. Read, pres.; Henry B. Pickens, treas.; Sims Read, supt. and mgr.; fine grade children's hose; 50 knitting machines; 15 loopers; buy 50/1, 18, 24, 120/2 combed peeler yarns; electric power. (Hinchman, Vezin & Co., New York, selling agents.)

Newport. Loudon Hosiery Mills; erecting mill, 130 x 60 ft.; (Branch of Loudon, Tenn. plant.)

Whitwell. Aycock Hosiery Mills; misses' 300 needle hosiery; new mill; 200 ribbers, 100 footers, 30 loopers; use 14s to 20s combed peeler and 26s to 40s mercerized yarns; steam and electric power. (Branch of South Pittsburgh, Tenn. plant.)

Vermont. Barre. Peerless Knitting Mills Co.; three-story mill. (Branch of Mattapan, Mass. plant.)

Wisconsin, Marinette. Martini Knitting Mill, 837 Main street; $20,000; full fashioned knit sweater coats; use 20s and 30s two-ply worsted and zephyr yarns.

Merrill. Lincoln Knitting Co., 1609 East Main street; $25,000; Paul W. Leopold, pres.; E. W. Schield, vice-pres.; Emil Semling, treas. and sec.; men's, women's and children's sweaters and underwear; buy 20s and 23s two-ply woolen yarns, 16s and 30s two-ply worsteds and 6s and 10s singles cotton; electric power.

Milwaukee. Blue Star Knitting Co., 80 Farwell avenue; $130,000; Max Breslauer, pres.; Julius Breslauer, treas.; Theodore Fanta, supt.; new mill; infants', children's and ladies' underwear; 25 knitting and 36 sewing machines; bleaching plant. (Theodore Fanta, buyer.)

Milwaukee. Shorewood Mills; $25,000; Charles F. Rauser, pres.; Erwin F. Rauser, treas. and supt.; men's high grade union suits; 6 knitting, 11 sewing machines; buy 1/18 to 1/36 carded and combed yarns; electric power.

Canada, Toronto. Venus Silk Hosiery Mills, 259 Sapdina avenue; women's silk hosiery; 28 knitting, 2 sewing machines.

NEW SILK MILLS

New Hampshire, Keene. Keene Silk Fiber Mills; $100,000; A. C. Bowman, pres.; Arthur R. Jones, treas.; artificial silk; will erect plant.

New Jersey, Grantwood. Victory Broad Silk Co., Lafayette and Hillside avenues; $100,000; Said Boyojy, pres.; S. A. Maidenly, treas.; broad silks; 32 looms; electric power.

Glen Gardner. Mains Silk Throwing Mill; Howard Mains, prop.

Paterson. Alkahn Silk Label Co., 12-18 Lawrence street; Alexander L. Kahn, pres.; Frank Freenwald, vice-pres. and treas.; Herbert M. Kahn, treas.; John J. Cummings, supt.; cotton and silk labels; 3 cotton and 5 silk looms. (Took over Mutual Woven Label Co.)

Paterson. Al Shaba Silk Co., 220 Straight street; $50,000; Shakeeb Marcen, pres. and supt.; Yorky Haykl, treas.; operate 40 spindles and 20 looms on georgette crepes.

Paterson. Adolph Blondeel, Inc., 95 Montgomery street; $38,000; Adolph Blondeel, pres.; Cyrille Nollet, treas.; 60 looms.

Paterson. Centre Silk Co., 170-172 Main street; $125,000; Isaac Shillit in charge.

Paterson. Hadlee Silk Mill, 165 Ward street; georgette, crepe de chine, satins and taffeta; 42 looms.

Paterson. Highland Silk Corporation, 275 Clay street; $150,000; A. T. Huser, pres.; A. J. Bendix, treas.; A. T. Huser, supt.; shirting, tie silks and novelties; new mill; 90 looms. (Stern & Bendix, 353 Fourth avenue, New York, selling agents.)

Paterson. Highland Silk Co., 71 Highland street; $50,000; Albert Walzak, pres.; Stanley Altarzewski, treas.; 32 looms. (Will erect mill this year.)

Paterson. Lawrence Bros., Royal Mill, Warren street; broad silks; 23 plain and 29 box looms; electric power.

Paterson. Lermonde Silk Mills, Inc., 316 North Eighth street; $100,000; David Gootenberg, agent.

Paterson. Luxite Broad Silk Works, 5 Morton street; Strange Mill; $50,000; Fred Auerbach, pres.; Nathan Klein, treas.; broad silks; 20 looms.

Paterson. Mial Silk Co.; 20 Oliver street; $50,000; Paul Mial, pres.; broad silks; 20 looms.

Paterson. Minerva Silk Co., 85 Getty avenue; $50,000; J. H. Farrer, pres.; Wm. Barber, treas.; 34 looms.

Paterson. H. Rosenberg Silk Co., 51 Warren street; $15,000; H. Rosenberg, pres.; Harry Rosenberg, treas.; 40 spindles; 30 looms. (Formerly I. Rutenberg & Co.)

Paterson. Seaton-Bachman Co., Inc., 19-23 Cook street; $45,000; Hartley H. Seaton, pres.; Charles J. Backman, treas. and supt.; silk throwing; 3,000 spindles.

Paterson. Textile Silk Works, 24 Van Houten street; $25,000; Angelo Mainardi, pres.; James Avigliano, treas. and agent; broad silks; 128 spindles, 20 looms.

Paterson, Wain Silk Co., 12 Bleecker street;

From a Drawing by R. J. Shutting, Chattanooga, Tenn.

MILL NO. 2 OF ROANOKE MILLS CO., ROANOKE RAPIDS, N. C.; NEW ADDITION AT BOTTOM OF "L"; VIEW SHOWS SOME OF THE 60 NEW BUNGALOWS UNDER CONSTRUCTION

Lockwood Greene & Co. Engineers Chicago
Turner Construction Company, Contractors

"We have a very decided advantage in securing labor

as we find the labor is greatly influenced by working conditions within the mill."

This is the experience of JOHN T. BRINE, General Superintendent of the Black Cat Textiles Company, referring to the Fenestra Window Walls in the Bennington, Vt., plant shown above.

"We find that through the use of Fenestra we are able to secure much more light and at the same time more perfect ventilation. In fact we feel that working conditions are greatly improved, and since the erection of our new plant we have a very decided advantage in securing labor over our competitors.

We are more than pleased with the results that we have been able to secure through their use."

Fenestra Steel Window Walls of shining glass and steel bars are the most economical of wall materials, because they make light cost less and produce more.

Fenestra

SOLID STEEL WINDOWS

Detroit Steel Products Company, 3406 East Grand Boulevard, Detroit, Michigan

Boston New York Philadelphia Washington Chicago San Francisco Hartford Buffalo Newark Richmond Baltimore

Representatives in all principal cities

D. B. Wain and M. Simon, props.; broad silks; 16 looms.

Phillipsburg. Watson Silk Co., First street; $60,000; E. K. Yarnell, pres.; Charles G. Scher, treas.; W. P. Watson, gen. mgr. & supt.; commission throwsters; 6,000 spindles.

Pompton Lakes. Pompton Silk Mills; Samuel Hollander; purchased building; broad silks; operating 84 looms. (Branch of Paterson plant.)

New York, Fultonville. Judson D. Yates; one story mill, 55 x 27 ft.; boiler room, 22 x 13 ft.; silk jersey cloth.

Gloversville. Kingsboro Silk Mills, Inc.; $25,000; Alvah H. Rogers, pres.; O. L. Everest, treas.; Loeen E. Winne, supt.; silk jersey cloth; two story mill, 40 x 100 ft.; 320 spindles, 6 looms, dyehouse; electric power.

Gloversville. Normandie Silk Mills, Inc., 11 Twelfth avenue; $300,000; James A. Batty, pres. and treas.; H. W. Bordwell, supt.; George A. Batty, buyer; silk Jersey-Milanese and tricot; 30 looms; electric power. (Taken over plant of James A. Batty & Son.)

Gloversville. Superior Silk Mills, Inc.; $30,000; Samuel Rothschild, pres.; Robert W. Russell, treas.; Jasper Stanyon, supt.; new mill 90x 45 ft.; dyehouse; trico and Milanese glove silk; 7 looms; electric power.

Gloversville. X L Ent Silk Mills, Inc., 250 Bleecker street; Fred Politsch, pres.; S. K. Siegel, treas.; Harvey Politsch, supt.; silk jersey for underwear and petticoats; 240 silk spindles, 4 looms, 2 braiders; dye; electric power; sell direct.

Long Island City. Star Silk Works, 261 Van Aest street; $25,000; Jacob Goldstein, pres.; Kalman Wengel, treas.; Morris Siederman, supt. and buyer; broad silks; 20 looms.

Massena. Dunlop Brothers; E. A. Chegwidden, supt.; broad silks; new mill; 60 looms; electric power. (Branch of Spring Valley, N. Y.)

New York. S. J. Levy, 71 Mercer street; silk yarns, silk winding and re-reeling.

New York. William M. Poz, 23-25 East Twenty-sixth street; georgettes; weaving, warping and quilling on commission.

New York. United Braid & Trimming Co., 83 Mercer street; $10,000; Jacob Stoff, pres.; Abraham Licht, treas.; braids, shoe laces and knitted trimmings; 48 silk spindles, 24 braiders, 6 knitting, 2 sewing machines.

Norwich. C. H. Knepka; throwster; 1,500 spindles.

Poughkeepsie. Acme Silk Mills, Inc., 113 North Clinton street; $40,000; C. R. Morley, pres.; W. C. O. Farnham, sec. and mgr.; leased building; silk cloth gloves, underwear and hosiery; 6 looms.

Spring Valley. Spring Valley Silk Co., Inc.; $15,000; John W. Tatton, pres. and supt.; Peter M. Klipala, treas.; broad silks; 30 looms; commission work; electric power.

Utica. Utica Silk Throwing Co., Inc., 610 South street; $10,000; Charles G. Merlini, pres. and mgr.; P. Pardi, vice-pres.; F. A. Dellicese, treas.; throwing of silks in crepe twist; 2,000 spindles; electric power.

Pennsylvania, Allentown. American Beauty Silk Co., Inc., 23-27 South Hall street; $30,000; Charles N. Lova, pres.; Alphonse C. Lova, treas.; crepe and georgette; 36 looms; electric power.

Allentown. Penn-Allen Silk Co., Inc., Allen Silk Mill Co. 2; Harvey D. P. Dietrich, pres.; Joseph Zubon, treas.; electric; sell direct. (Took over Pennsylvania Silk and State Silk Co.)

Allentown. Tuscan Silk Mills, Sixth and Cumberland streets; $50,000; T. Garisio, pres.; W. C. Sanger, treas.; broad silks; 50 looms.

Bethlehem. R. K. Laros Silk Co., Ninth and Linden streets; $50,000; R. K. Laros, prop.; new mill, 60 x 200 ft.; 10,000 spindles.

Dunmore. Edirose Silk Throwing Co.; J. F. McDurmott, supt. and buyer; 16,000 spindles.

Easton. Easton Silk Mill, Inc., Centre and Mauch Chunk streets; $50,000; Gustave M. Meyner, pres.; Jacob F. Levy, treas.; M. C. Meyner, supt.; broad silks; 50 looms.

Easton. Triangle Silk Co.; $30,000; Christian Meyers, pres.; George De Remer, sec. and supt.; Morris Lipschitz, treas.; crepe de chines; 20 box looms; electric power.

Emaus. Emaus Throwing Co.; $23,000; J. H. Frederick, pres.; throwing; 10,000 spindles.

Emaus. Zollinger & Schroth, Inc.; $100,000; Henry Zollinger, pres. and treas.; J. B. Brink, supt.; broad silks; 3,000 spindles, 300 looms. (W. H. Duval Co., selling agents.)

Hecktown. Myers Silk Co.; $30,000; R. H. Armstrong, pres.; Harry P. Brown, treas.; Henry C. Meyer, supt.; broad silks; 35 looms.

Montoursville. The Montour Silk Co., Broad street; $25,000; Albert M. Munzinger, pres.; Oscar M. Graf, treas. and supt.; Arthur W. Orth, sec., buyer and agent; taffetas and satins; 120 spindles, 18 looms; electric power.

Nanticoke. Duplan Silk Co., Washington street; one and two-story mill, 100 x 250 ft.

Phillipsburg. Central Penn Silk Co.; $50,000; Leonard W. Wood, pres.; C. G. Avery, sec. and treas.; J. J. Redyke, mgr.; commission throwing of georgette and organzine; new mill; 15,000 spindles; electric power; Leonard W. Wood Silk Co., New York, selling agents.

Pittston. Pittston Silk Throwing Co., Main street; L. B. F. Hofman, pres. and buyer; H. B. Hand, treas.; P. F. Grady, supt.; georgette crepe; new mill, 77 x 120 ft. to be erected in March; electric power. (Office, 25 Madison avenue, New York.)

Pottstown. Lederer Bros., York and Walnut streets; $100,000; Samuel Cohen, pres.; A. Lederer, treas. and buyer; E. L. England, supt.; new mill; 60 looms; electric power.

Quakertown. G. E. Navarre, 114 Front street; P. H. Gasner, buyer; broad silks; 44 looms; electric power. (Bernstein & Gasner, New York selling agents.)

Scranton. Calumet Silk Mfg. Co.; V. Fiske Wilcox, pres.; H. S. Murray, treas.; silk throwing on commission. (Succeeded W. H. Kilgour Silk Mfg. Co.)

Scranton. Connerton Silk Co.; $60,000; E. J. Connerton, pres. and treas.; M. J. Connerton, supt.; commission silk throwing; new mill; 3,000 spindles.

Scranton. Palmetto Silk Co., 501-503 Race street; A. W. Thomas, mgr.; William Knott, supt.; silk throwing; new mill; 2,000 spindles.

Shamokin. Sham-O-Kin Silk Corp., North Fifth street; $75,000; C. A. Barron, pres.; W. A. Mullen, sec. and treas.; W. T. Atkins, supt.; dress goods; 40 looms; electric power. (Remy, Schmidt & Pleissner, New York, selling agents.)

East Stroudsburg. The L. A. W. Silk Co., Inc., Henry street; $60,000; broad silks; new mill erected; 40 looms.

Stroudsburg. Pocono Ribbon Mills, Ann street; $10,000; William J. Huss, pres.; A. C. Sweazy, treas.; weave on contract for moire silk mills; two story mill; 16 narrow looms.

Taylor. Economy Silk Co., Inc.; Joseph Weiss, pres.; Charles A. Bouff, treas.; Leo Schlesinger, gen. mgr.; ties, shirtings and dress goods; 65 looms; electric power.

Tobyhanna. Wilson & English Silk Co.; $100,000; James P. Wilson, pres.; Joseph D. English, treas.; organzine commission throwing; 5,000 spindles. (Office at Dickson City, Pa.)

South Wilkes-Barre. Penn Silk Throwing Co.; $100,000; W. B. Lovatt, mgr. and buyer; silk yarns; 8,000 spindles.

Wilkes-Barre. George R. Goebel Silk Throwing Co., Lehigh street; throwing crepe, organzine and tram; one story mill, 105 x 49 ft.; 5,000 spindles.

Rhode Island. Central Falls. New System Textile Co., 510 Mill street; $10,000; Pierre Joyal, pres. and supt.; Leger J. Morissette, treas., agent and buyer; silk and cotton cloth; quilling, winding and weaving; 20 looms; electric power; buy 30s to 80s yarns.

Pawtucket. Glendana Silk Mill, 45 Washington street; $100,000; George H. Collett, pres.; Clarence R. Howe, treas.; P. J. Poutre, supt.; broad silks; new mill; 108 looms.

Valley Falls. Queen Quality Silk Mills, Inc., 11 Broad street; $50,000; E. Grant Hayward, Jr., pres.; Meyer Silberstein, treas.; broad silks; 83 broad looms; convert own goods.

MISCELLANEOUS MILLS

Delaware, Wilmington. Wilmington Bleachery Co.; $100,000; Jos. N. Harman, pres.; Jos. N. Harman, Jr., vice-pres., sec. and mgr.; Horace E. Harman, supt.; bleaching and finishing, cotton piece goods, Turkish and huck towels; 16 sewing machines. (Formerly Wilmington Bleachery Co.)

Indiana, Fort Wayne. American Textile Art Printing & Dyeing Co., Inc., 403-405 Jefferson street; $500,000; Ernest F. Bushman, pres.; George S. Schauer, treas.; household goods and cotton, linen and silk wearing apparel; new mill being erected; will start operations in April or May.

Illinois, Chicago. Marshall Field & Co.; leased new mill 520 x 133 ft.; jute bags; electric power.

Massachusetts, Millbury. Phoenix Mills, William H. Harris, prop.; custom dyeing of raw stock, skein yarns, yarn scouring, coning; electric power. (Office 232 Summer street, Boston, Mass.)

Missouri, St. Joseph. Missouri Valley Sack Co.; erecting two-story mill, 300 x 280 ft. (Branch of Cleveland, (O.)-Akron Bag Co.)

New Jersey, Paterson. Bunker Hill Silk Dyeing & Finishing Co., 51 Bleeker street; $25,000; Irwin Wallfish, pres. and supt.; Edward J. Rey, treas.; dyeing and finishing for the trade.

Paterson. La Francaise Piece Dye Works, 557 East Fortieth street; $125,000; Marius B. Vadon, pres.; Jules L. Chaussabel, treas.; dye and finish all kinds of piece goods; electric power.

Paterson. Pollock Dyeing & Finishing Co., Mill street; $50,000; Samuel Pollock, pres.; Eugene Beccary, treas.; began operations in January.

Paterson. United Veil Dyeing & Finishing Co., 44 Front street; $125,000; Andrew Ackerman, pres.; Andrew Frommelt, treas.; J. B. Robinson, supt.

New York, College Point. New York Silk Dyeing Co., 15-23 Tenth street. (Succeeded R. A. Weber Silk Dyeing Co.)

Long Island City. Payet Silk Dyeing Corp., Boulevard and Webster avenue; $150,000; Jerome Payet, pres. and treas.; Louis Mulsand, sec. and supt.; silk dyeing and finishing all fabrics, Jersey cloth in tubular or flat form, finishing of yarn dyed goods; steam and electric power.

North Dakota, Valley City. The Valley City Fibre Co.; $90,000; Ingram J. Moe, pres.; George W. Bowen, treas.; John D. Gray, mgr.; flax tow for upholstering; hemp fibre and tow for twine and thread manufacturers; new mill; electric power. Started operations in January.

Ohio, Cleveland. Erie Dyeing & Processing Co. 1842-48 East Fortieth street; $100,000; M. W. Haber, pres.; G. F. Landman, vice-pres.; Ben Haber, sec., treas and mgr.; job dyeing and bleaching cotton, worsted and woolen yarns; new mill; electric power. (Formerly Erie Dyeing Co.)

Cleveland. United Textile Co., Inc., 3778 East Ninety-first street; Frank J. Svoboda, pres.; Joseph N. Malec, treas.; flax fiber from flax straw; patented process.

Pennsylvania, Philadelphia. Pequea Mills Co., Twenty-second and Spring Garden streets; $500,000; John P. Wood, pres.; Thomas W. Andrews, treas.; fancy worsted and piece dye men's wear, serges, etc.; 109 wide and 12 narrow looms; dye (yarn and piece) and finish; buy silk and worsted yarns; sell direct. (Taken over Rutholt Dye Works.)

Philadelphia. Felix A. Tomalina & Co., Inc., Front and Venango streets; $25,000; Felix A Tomalino, pres.; Etienne Doutre, treas.; dye hosiery, worsted, woolen, cotton and silk skeins; daily capacity 1,500 pounds of silk, 6,000 pounds of wool, worsted and cotton skeins, 2,500 pounds of hosiery.

Wisconsin, Fond du Lac. De Luxe Rug Co., Eighth and Main streets; C. L. Hastings, pres.; E. W. Weisbrod, sec. and treas.; Martin Koeck, Jr., supt.; grass rugs, 8 looms; electric power. (Taken over business of Wisconsin Grass Rug and Carpet Co.)

Enlargements and Improvements

COTTON

Alabama, Alexander City. Bettie Francis Cotton Mills; capital increased to $400,000.

Athens. Fulton Cotton Mill Co.; 4 new No. 50 three way winders; added 4,536 spindles; erecting addition.

Fairfax. Fairfax Mill; new weave shed, 132 x 20 ft.; 150 new looms, 5,000 spindles; erected 40 mill cottages, teachers' dormitory.

Opelika. Opelika Cotton Mills; three story addition, 176 x 104 ft.; 12,500 spindles installed.

Ozark. Ozark Cotton Mill Co.; added 1,000 ring spindles, 2,000 twisting spindles, 1 doubling winder and chain warper for making two-ply ball and chain warps.

Piedmont. Coosa Mfg. Co.; addition 360 x 110 ft., two stories; 18,000 spindles; electric drive.

Roanoke. W. A. Handley Mfg. Co.; cotton ducks; addition 95 x 100 ft.; 5,100 new spindles, 226 looms.

Connecticut, Jewett City. Ashland Cotton Co.; $300,000; addition 190 x 145 ft.; 11,000 new spindles, 546 looms; electric power.

Putnam. Manhassett Mfg. Co.; $2,250,000; purchased Cohannet Mills, Taunton, Mass.; will operate as spinning plant.

Georgia, Athens. Union Thread Co., W. D. McCombs, agent; 24 to 36 reverse thread yarn; 4,000 spindles. (Branch of Cincinnati, O., plant.)

Columbus. Bibb Mfg. Co.; four story addition, 578 x 127 ft.; 300 x 120 opener-picker room; weave shed addition, extending present shed to 478 ft.; will add 50,000 spindles and 1,500 looms.

Columbus. Columbus Mfg. Co.; weave shed, 338 x 216 ft.; 100 new looms.

Dalton. Elk Cotton Mills; addition 100 x 60 ft.; 2,100 new spindles.

Griffin. Griffin Mfg. Co.; added 200 automatic looms.

Griffin. Rushton Cotton Mills; capital increased to $500,000.

Macon. Bibb Mfg. Co.; Payne Cotton Mill; one story addition, 565 sq. ft., two warehouses; will add large number of spindles and looms.

Marietta. Marietta Mfg. Co.; added 3,000 spindles to manufacture yarn for own use.

Millen. L. H. Gilmer Co.; installed 12 new looms for manufacturing tubular goods.

Sargent. Wahoo Mfg. Co.; addition 200 x 100 ft.; 3,000 spindles.

Illinois, Chicago. Cotton Specialty Co.; addition; 216 new spindles; new willow, picker, cards, slubbing, tubing, twisting and coning machinery.

Massachusetts, Assonet. Swiss Textile Co.; removed plant from Warren, R. I., and combined with Assonet plant.

Brockton. Walker Webbing Co.; J. Townsend Walker, pres. and treas.; addition 56 x 104 ft.; 9 new looms; capital increased to $60,000.

Fall River. Shawmut Mills; increased capital to $600,000; Leonard S. Chace, pres.; Richard B. Chace, treas.; Arthur B. Barnes, supt.; new mill erected.

Fisherville. Lund Textile Co.; weave room 100 x 250 ft.; 100 new looms.

Lowell. Hamilton Mfg. Co.; four story addition to No. 1 mill, 685 x 135 ft.; 100,000 spindles.

Lowell. Massachusetts Cotton Mills; increased capital to $5,000,000; Augustus P. Loring, pres.; Edward Lovering, treas.; E. A. Gregory, supt.

Millbury. Millbrook Linen Works, Inc.; two story picker house, 40 x 60 ft.

New Bedford. Booth Mfg. Co.; added 1512 new spindles; 54 looms.

New Bedford. Nashawena Mills; added 46,000 spindles, 600 looms.

North Adams. Greylock Mills; one story addition, 72 x 15 ft.

North Adams. Hoosac Cotton Mills; four story addition, 110 x 80 ft. to No. 1 mill.

West Warren. Warren Cotton Mills of the Thorndike Co.; three story addition to mill No. 1, 133 x 82 ft.; two story carding mill, 336 x 132 ft.; one-story picker building, 110 x 120 ft.; 300 new Draper looms, 12 fly frames and 2 slubbers to replace old machinery.

Thorndike. Thorndike Co.; six story storehouse, 75 x 163 ft.

Michigan, Niles. Towar Cotton Mills, Inc.; L. W. Cuddy, gen. supt.; new mill equipped with 12,200 ring spindles, 20 automatic looms for automobile tire fabric.

Mississippi, West Point. The Cardinal Mills; changed from carded to combed yarns, 40/1 to 40/2 skeins, warps and tubes.

New Jersey, Passaic. Brighton Mills; one story addition, 140 x 150 ft; added 20,800 twister spindles.

New York, Oswego. Oswego Yarn Mills, Inc.; capital increased to $305,000; addition 70 x 100 ft.; one story addition 100 x 110 ft.; added 2,880 spindles with drawing, roving and winding.

Patchogue. Patchogue-Plymouth Mills Corp.; consolidation of Patchogue Mfg. Co., Patchogue, L. I., and Plymouth Mills, Lawrence, Mass.

North Carolina, Brookford. Brookford Mills Co.; new weave shed; no new equipment.

Bynum. J. M. Odell Mfg. Co.; increased capital to $275,000; three story addition 50 x 100 ft.; 4,000 new spindles.

Cherryville. Cherryville Mfg. Co.; addition; 5,000 new spindles.

Cherryville. Howell Mfg. Co.; addition 160 x 70 ft.; 5,000 new spindles.

Granite Falls. Granite Falls Manufacturing Co.; increased capital to $400,000; new No 2 mill 424 ft. long.

Greensboro. Pomona Mills, Inc.; three story addition to dyehouse and finishing room, 132 x 80 ft.; 174 box looms.

Greensboro. White Oak Mills; two story addition to weave shed, 100 x 150 ft.; added 1,000 looms; 75 to 100 tenement houses to be erected.

Greenville. Greenville Cotton Mills, Inc.; capital increased to $250,000; addition 250 ft. long; 5,280 spindles added.

Hillsboro. Belle Vue Mfg. Co.; capital increased to $500,000; addition 316 x 104 ft.; 5,000 new spindles, 200 looms.

Hope Mills. Rockfish Mills, Inc.; started up No. 4 mill; R. G. Campbell, supt.; 30s single and two-ply yarns in skeins, warps and tubes; installed 12,400 spindles.

King's Mountain. Mason Cotton Mills Co.; added 3,392 new spindles.

Maiden. Carolina Cotton Mill; capital increased to $300,000; addition 250 x 104 ft.; operating 12,000 spindles.

Mayworth. Maya Mills, Inc.; added 6,600 new spindles.

Red Springs. Red Springs Cotton Mills; added 1,960 spindles.

Roanoke Rapids. Roanoke Mills Co.; two story addition, 274 x 157 ft. to weave shed; two-story addition, 157 x 100 ft., for finishing plant; one-story dyehouse, 57 x 50 ft.

Rockingham. Hannah Pickett Mills; addition; 5,000 spindles, 200 looms added.

Shelby. Belmont Cotton Mills Co.; added 1,200 spindles, 400 twister spindles.

Shelby. Shelby Cotton Mills; addition, 83 x 75 ft.; 5,000 spindles, 80 looms; electric power.

Spindale. The Spindale Mills Co.; $150,000; medium combed and single ply yarns; 100 ft. addition; operating 5,520 spindles; electric power.

Rutherfordton. The Spencer Mills; addition, 40 ft. long; 2,176 new spindles.

Pennsylvania, Philadelphia. The Industrial Tape Mills Co., Trenton avenue, Sergeant and Hazzard streets; $100,000; Samuel Reed, pres.; 104 tape looms. (Moved to former plant of D. Jamieson's Sons.)

Philadelphia. John H. Meyer Tire Duck Co.; purchased Delta Spinning Mills; cord fabrics for auto tires; 20,000 spindles, 60 looms. (Branch of Newark, N. J., plant.)

Scranton. Scranton Lace Co., Glenn and Meylert streets; three story addition, 72 x 140 ft.

Rhode Island, Albion. Valley Falls Co.; erecting addition, 130 x 72 ft., four stories.

Esmond. Esmond Mills; two story addition, 67 x 97 ft.

Lonsdale. Lonsdale Co.; one story addition, 30 x 73 ft.; electrification of plants completed.

Pawtucket. Arbeka Webbing Co.; erecting new mill and storehouse at North Main street and Mendon avenue; will occupy in spring; total equipment will be 34 looms.

Pawtucket. D. Goff & Sons; reincorporated; capital increased to $3,000,000.

Pawtucket. Lorraine Mfg. Co.; new dyehouse and finishing plant; new power house.

Pawtucket. Tubular Woven Fabric Co., capital increased to $350,000; erecting four story addition, 184 x 58 feet, one story, 153 x 60 ft. and one story, 11 x 36 ft.

Warren. Mt. Hope Spinning Co.; added 7 cards, 6 combs, 1 ribbon machine and 1 doubler.

Westerly. George C. Moore Co.; one story addition, 100 x 150 ft.; operates 190 looms.

South Carolina, Anderson. Toxaway Mills;

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KLOTS SILK THROWING CO.
Buildings at Lonaconing, Md., Keyser, W. Va., and Carbondale, Pa.

MIESCH MFG. COMPANY
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Est. 1892 65-96

increased capital to $500,000; 3,100 new spindles.

Bamber. Sauter Mills; John H. Cope, pres.; Frank E. Whitman, treas.; W. L. Dunn, supt.; sheetings; erecting addition, 57 x 264 ft.; will install 15,000 spindles. (Formerly Bamberg Cotton Mills Co.)

Gaffney. Globe Cotton Mills; addition; 1,740 new spindles, 24 looms.

Greenville. Camperdown Mills; addition, 65 x 26 ft.; 1,500 new spindles.

Greenville. The Chester M. Goodyear Co.; August W. Smith, pres.; C. M. Goodyear, treas.; John R. MacDonald, supt.; erecting new mill, 250 x 100 ft., dye house and bleachery; capital to be increased to $400,000.

Greenville. Katherine Mfg. Co.; purchased by Chas. J. Webb & Co., of Philadelphia; cotton yarns; capacity to be doubled.

Rock Hill. Victoria Cotton Mills; increased capital to $400,000.

Tennessee, Knoxville. Cherokee Spinning Co.; increased capital $400,000; added 7,500 spindles.

Prendergast. Prendergast Cotton Mills; capital increased to $500,000; addition; added 10,152 spindles.

Ridgedale. Thatcher Spinning Co.; addition, 100 x 82 ft.; 8,704 new ring spindles.

Virginia, Danville. Riverside and Dan River Cotton Mills, Inc.; will erect weaving mill at Riverside division; add 1,500 to 1,700 new looms and install 3,300 looms from Riverside plant; 30,000 to 40,000 new spindles to be installed in place of former looms.

WOOLEN

Connecticut, Danielson. Whitestone Mills, American Woolen Company, W. B. Brown, agent and supt.; 40-82 inch looms. (Purchased plant of Whitestone Worsted Co.)

Rockville. James J. Regan Mfg. Co.; capital increased to $800,000; 17 sets of cards, 100 looms.

Stafford Springs. The Stafford Worsted Co.; increased capital to $300,000. William Park, pres.; Alexander I. Mitchell, treas.

Stafford Springs. Cyril Johnson Woolen Co.; two-story addition 240 x 100 ft.; 2,000 new spindles, 30 looms, 2 sets of cards.

Unionville. Charles W. House & Sons; $200,000; new mill; also addition, 50 x 100 ft.; 1 set of cards, 8 looms.

Georgia, Rossville. Peerless Woolen Mills; new weave shed, two stories, 80 x 200 feet; finishing room, 65 x 150 ft.

Indiana, Columbia City. Columbia Woolen Mills; 4 story addition, 60 x 60 ft.; added 2 sets of cards, 10 looms.

La Porte. La Porte Woolen Mills; Samuel Fox's Sons, Inc.; four-story addition, 80 x 250 ft., first floor for weave room with 126 looms; four-story addition to wool department, 40 x 110 ft.

Mexico. Mohican Spinning Co.; increased capital to $100,000; addition 80 x 60 ft.; 360 new spindles, 5 sets of cards.

Massachusetts, Brookside, Westford. Abbott Worsted Company, Brookside Mill; J. A. Cameron, pres.; J. C. Abbot, treas.; E. M. Abbot, agent; William Balmforth, supt.; 4,200 spindles. (Taken over Brookside Worsted Mills of George C. Moore). (Office Graniteville, Mass.)

Chelsea. Shirley Mills; manufacture reworked wool; added 10 sections of dryers for carbonizing, 2 rag washers.

Enfield. Quibbin Mfg. Co.; added 400 spindles 50 looms, 4 pickers. (Taken over by London Woolen Mills.)

Farnumsville. Wuskanut Mill; S. Slater & Sons; four-story machine shop, 36 x 53 ft.

Gleasondale. Gleasondale Woolen Mills; increased capital to $275,000; addition erected; 3 sets of cards, 2,160 new spindles, 7 looms.

Huntington. Huntington Mfg. Co.; new weave shed; added 36 looms; dyehouse doubled.

Methuen. International Worsted Mills; addition 100 x 60 ft.; 64 looms added.

Lawrence. Monomac Spinning Co.; five-story spinning mill, 340 x 125 ft.

Methuen. Selden Worsted Mill, Inc.; three-story mill, 120 ft. sq.; 80 looms. (Branch of Lawrence, Mass. plant.)

Millbury. Mayo Woolen Mills Co.; reorganized; $500,000; Max S. Bronstein, pres. and treas.; John R. Greenwood, agent; Geo. W. Overend, supt.; three-story addition to No. 1 mill; 18 sets of cards, 115 looms, 6 pickers.

North Adams. Arlington Mills; Hoosac Worsted Mills Dept.; two-story addition, 56 x 74 ft.; 202 new looms.

North Andover. The Brightwood Mfg. Co.; two-story addition, 93 x 108 ft., for weaving and winding.

North Bellingham. Bellingham Woolen Co.; three-story addition, 50 x 100 ft. for finishing room.

Pittsfield. Kinney Worsted Yarn Co.; addition 136 ft. long; 2,000 spinning, 1,400 twisting spindles.

Spencer, Bigwood Woolen Co.; two-story addition, 57 x 84 ft. for dyehouse, wet finishing room and weaving department; 14 new looms, 2 sets of cards.

Uxbridge. S. F. Scott; Elmdale Mill; incorporated; $500,000; satinets and unions; addition erected; 8 new looms, 1 spinning machine.

Worcester. The Bell Co.; added 10,000 sq. ft. to floor space for twisting department; installed 2,200 twisters, 32 looms.

Worcester. Jefferson Mfg. Co., 298 Grove street; new weaving mill; 36 looms; electric power. (Branch of Jefferson, Mass. plant.)

Wrentham. L. P. Beaumont; installed carbonizing plant; operates 4 sets of cards and 2 pickers.

Wrentham. Woonsocket Garnetting Co.; purchased new mill building; installed 3 garnetts, 2 pickers from Woonsocket, R. I. plant. (Woonsocket plant discontinued.)

Michigan, Eaton Rapids. Eaton Rapids Woolen Mills; addition to dyehouse and carding and spinning room; no new equipment.

Minnesota, Duluth. Patrick-Duluth Woolen Mills; two-story addition, 75 x 120 ft., for weave room and finishing department.

New Hampshire, Milton Mills. Antin Blanket Co.; Estate John H. Townsend; 1 set of cards, 220 spindles, 9 looms; H. A. Townsend, agent. (Branch of main mill of company at Milton Mills.)

New Jersey, Passaic. Tuxedo Mills, Inc.; capital increased to $100,000; Alfons Koppel, pres.; Henry Bahnsen, treas.; A. Koppel, supt.; worsted suitings and novelty fabrics; added 60 looms; will enlarge plant this spring.

New York, Auburn. Firth Carpet Co.; addition 80 x 150 ft.

Newfane. Lockport Felt Co.; $100,000; W. W. Campbell, pres.; Wm. H. Lee, treas.; paper makers' felt and machinery cloth; added 600 spindles, 4 looms, 2 sets of woolen cards.

Rensselaer. The Ashe Mills, Inc.; $25,000; overcoatings, cloakings, Jersey cloth; two-story addition, 32 x 42 ft. for fulling and winding departments.

Rochester. Allen Woolen Mills; new weave shed; dryer, shear and fulling mill; two-story office building; 40 new broad looms.

Syracuse. Syracuse Rug Works; purchased building occupied by company; added 7 looms.

Watervliet. The Roy Woolen Co.; addition to finishing department; new looms added; operating 10 sets of cards, 96 looms, 1 picker.

Pennsylvania, Philadelphia. Wilson H. Brown, Inc.; capital increased to $300,000; consolidated with the Continental Mills, Inc.; Millard D. Brown, pres.; E. Stanley Bowers, vice-pres. and treas.; Rinaldo A. Lukens, gen. mgr.; wool and merino yarns, "Fulwool" knit fabrics and "Continental" elderdowns; 8 sets of cards, 6,400 spindles, 92 knitting machines, 2 sewing machines, 1 garnett, 3 pickers.

Philadelphia. Cambridge Worsted Mills, Allegheny avenue and C street; capital increased to $100,000.

Philadelphia. O'Neill Bros.; Howard and Oxford streets; purchased plant of Oxford Mills Co., Front and Oxford streets.

Philadelphia. Overbrook Carpet Co.; rebuilding portion of mill destroyed by fire.

Philadelphia. William F. Read & Sons Co.; $795,000; one-story addition; 50 new looms.

Philadelphia. The Windsor Mfg. Co.; three-story addition, 240 x 60 ft.; 120 broad looms added.

Pillow. Bolton Rug Works; Colonial rag rugs and carpets and all cotton rugs; 20 looms; electric. (Branch of Elizabethville, Pa. plant.)

Rhode Island, East Greenwich. The Greenwich Mills; four-story addition, 35 x 100 ft. for burling, mending and winding departments.

Providence. Colwell Worsted Mills; increased capital to $250,000.

Providence. Monohassett Woolen Mills; Cleveland Worsted Mills Co.; added 1,000 spindles.

Woonsocket. Alsace Worsted Co.; three-story addition, 80 x 250 ft.; 19,000 spindles.

Woonsocket. Barnal Worsted Co.; capital increased to $300,000.

Woonsocket. Cumberland Worsted Mills; new mill, 60 x 90 ft.; 800 spindles.

Utah, Provo. Knight Woolen Mills; one-story finishing plant, 200 x 40 ft. for converting woolens manufactured by company into mackinaws, coats, vests, overcoats, etc.

West Virginia, Martinsburg. Berkeley Woolen Co.; addition, 160 x 60 ft.; 4,320 new spindles, 2 sets of cards, 12 looms; electric power; capital increased to $250,000.

Wisconsin, Baraboo. Island Woolen Co.; four-story addition, 120 x 56 ft.; 720 new spindles, 10 looms, 2 sets of cards.

Sheboygan Falls. Brickner Woolen Mills Co.; two-story addition, 52 x 55 feet for dyehouse and power plant.

Canada, Ontario, Elmira. Great West Felt Co., Ltd.; one-story mill, 90 x 52 ft.; addition to old mill, 106 x 53 ft., two stories; added 2 sets of cards.

Ontario, Guelph. Guelph Carpet & Worsted Spinning Mills, Ltd.; three-story addition, 110 x 60 ft.; one-story added to main mill, 124 x 60 ft.; 23 new spinning and 12 twisting frames, 3 sets of drawing, 2 sets of worsted cards, 4 dyeing machines, dryers, etc.

KNIT

Alabama, Alexander City. Russell Mfg. Co.; increased capital to $500,000.

Georgia, Griffin. Kincaid Knitting Mills; installed 7 sewing, 100 knitting machines, 30 loopers for ladies' fine goods; bleaching and dyeing machinery.

Rossville. Richmond Hosiery Mills; Garnett Andrews, pres.; all grades seamless hosiery; 50 knitting machines. (Branch of Rossville, Ga., plant.)

Illinois, Chicago. Shaker Knitting Mills Co., Inc.; moved to larger quarters at 426-440 South Clinton street; added 1 winder, 6 knitting machines.

Indiana, Fort Wayne. Thieme Bros. Co.; four story addition, 90 x 160 ft.; added 32 knitting machines.

Kentucky, Paducah. Paducah Hosiery Mills; increased capital to $48,000; added 35 knitting machines.

Louisiana, New Orleans. Glenn Knitting Co.; 2601 Chartress street; $100,000; J. F. Carter, pres.; women's 200 and 210-needle mercerized hosiery and men's 176-needle cotton hose; 152 knitting, 4 sewing machines, 20 loopers. (Formerly of Mobile, Ala.)

Massachusetts, Boston. Knitted Padding Co.; $625,000; H. L. Burrage, pres.; R. P. Caldwell, vice-pres.; S. W. Nichols, Jr., treas.; H. G. Mitchell, buyer; added 6 knitting machines; 6 sets woolen cards.

Mattapan. Peerless Knitting Mills Co.; incorporated with $1,000,000 capital; Robert A. Scott, pres.; Frederick D. Ladd, vice-pres.; George E. Crawford, treas.; J. M. Scott, asst. treas.; F. T. Woodman, second vice-pres. and sales manager; will erect branch plant at Barre, Vt., early in 1920.

Taunton. Whittenton Hosiery Corporation; capital increased to $100,000; addition; 46 new knitting machines.

Michigan, Detroit. Victor-Vassar Knitting Mills; $100,000; David R. Stockton, pres.; Edwin A. Wolff, treas. (Consolidation Victory Knitting Mills, Detroit, and Vassar Knitting Mills, Bay City.)

Minnesota, Duluth. Great Northern Spinning and Knitting Mills; sweaters, lumbermen's socks, golf vests, etc.; added 21 knitting machines.

Duluth. West Duluth Knitting Mill; moved to 201 Central street; added 12 sewing and 18 knitting machines.

Minneapolis. Minneapolis Knitting Works; increased capital to $600,000; addition; 25 new knitting machines.

New York, Albany. Albany Knitting Co., Inc.; moved to 64-68 Trinity place; increased capital to $30,000; 60 knitting, 10 sewing machines.

Amsterdam. Lansing-Smith & Co., Inc.; John H. Lansing, pres. and treas.; John A. Smith, supt.; sweaters, golf vests, cardigans; moved to 69 Milton avenue; added 12 latch needle cylinder knitting, 3 flat knitting and 11 sewing machines. (Succeed John H. Lansing & Co., Inc.)

Bath. Bath Knitting Corporation; two story addition, 200 x 40 ft.

Brooklyn. Hub Knitting Mills, Inc., 1007 Buchman avenue; $150,000; Louis Pearl, pres. and supt.; Morris H. Epstein, treas.; 150 knitting, 100 sewing machines. (Formerly 134 Spring street, New York.)

Hudson. Swansdown Knitting Co.; one story addition, 60 x 86 ft. for scouring and carbonizing of wool and noils.

New York. Empire Fringe Co.; Sacks & Miller, props.; 6 new knitting machines.

New York. Palm Knitting Co., 106 Grand street; capital increased to $30,000.

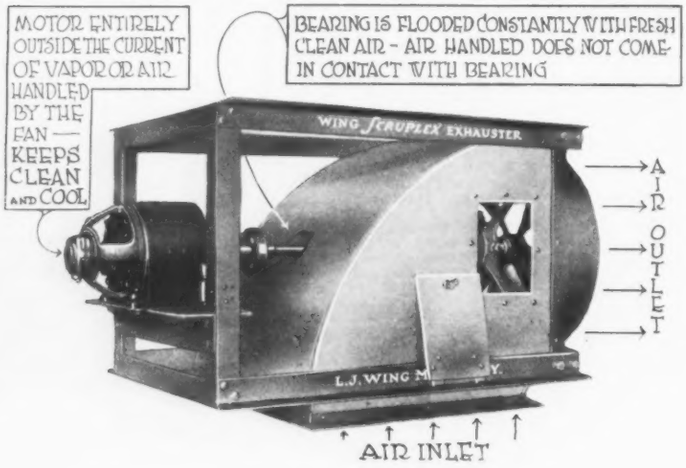
New York. Visor Knitting Co.; increased capital to $130,000; added 10,000 ft. of storage space.

Utica. Augusta Knitting Corp.; incorporated, $1,000,000; Rodney Wilcox Jones, pres.; John P. Liddy, treas. (Takes over all plants of Augusta Knitting Co.)

Utica. L. K. Hosiery Co.; $15,000; addition; operating 21 knitting, 4 sewing machines, 3 loopers.

From a drawing by R. J. Shutting, Chattanooga, Tenn.

RANKIN MILLS AND PINKNEY MILLS, GASTONIA, N. C.; CHURCH, PLAYGROUND AND NUMEROUS BUNGALOWS UNDER CONSTRUCTION


MOTOR ENTIRELY OUTSIDE THE CURRENT OF VAPOR OR AIR HANDLED BY THE FAN — KEEPS CLEAN AND COOL
BEARING IS FLOODED CONSTANTLY WITH FRESH CLEAN AIR - AIR HANDLED DOES NOT COME IN CONTACT WITH BEARING
WING SCRUPLEX EXHAUSTER
AIR OUTLET
AIR INLET

WING-SCRUPLEX
REG. U.S. PAT. OFF.
EXHAUSTER
PAT APP'D FOR

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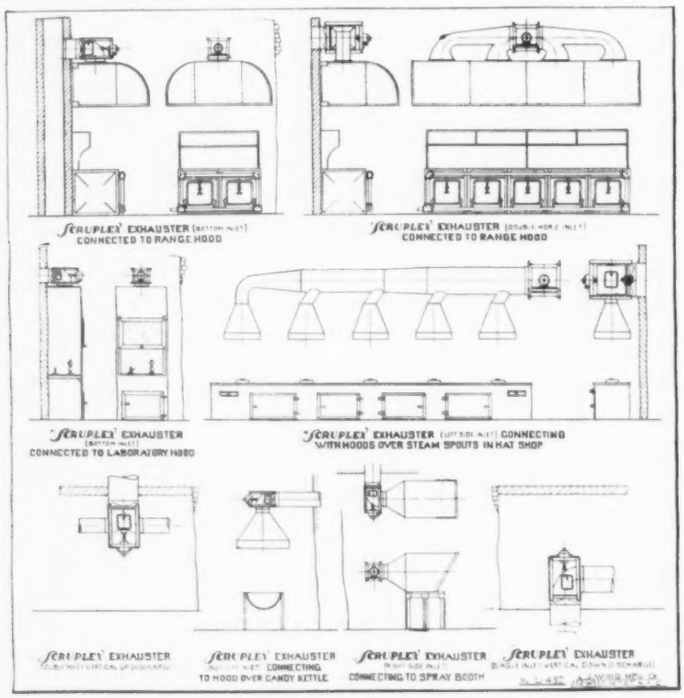
The cut below gives a few suggestions—they may not apply directly to your business, but they will show you their wide field of application.


SCRUPLEX EXHAUSTER CONNECTED TO RANGE HOOD
SCRUPLEX EXHAUSTER CONNECTED TO RANGE HOOD
SCRUPLEX EXHAUSTER CONNECTED TO LABORATORY HOOD
SCRUPLEX EXHAUSTER CONNECTING WITH HOODS OVER STEAM SPOUTS IN HAT SHOP
SCRUPLEX EXHAUSTER
SCRUPLEX EXHAUSTER CONNECTING TO HOOD OVER CANDY KETTLE
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Utica. **Nu-Tex Hosiery Co.**; $25,000; J. J. Robischon, pres.; M. F. Robischon, treas. and supt.; men's cashmere half hose, seamless; equipment increased to 24 knitting, 2 sewing machines, 6 loopers. (Taken over Vassar Hosiery Mills.)

North Carolina. **Burlington.** Sellers Hosiery Mills; new mill to replace burned structure; 210 knitting, 2 sewing machines, 35 loopers.

Durham. **Durham Hosiery Mills**; three story bleachery, 60 x 60 ft.; planning to enlarge plant further.

Oxford. **Hemshaw Hosiery Mills**; three story addition, 40 x 120 ft.; will do own dyeing and finishing by summer.

Ohio, Cleveland. **Consolidated Knitting Co.**; moved to larger quarters at East Twenty-first street and Superior avenue; no additional equipment.

Cleveland. **Green-Haas-Schwartz Co.**, Euclid avenue and East Fifty-seventh street; erecting new mill having 150,000 sq. ft.

Toledo. **Dolphin Hosiery Co.**, 1301-7 Summit street; three story mill, 80 x 118 x 137 x 124 ft.; 25 new knitting machines.

Oregon, Portland. **Zantzen Knitting Co.**, Sandy Boulevard at Twentieth street; new daylight mill, 100 x 200 ft.; added 6 new knitting machines. (Formerly at 31 North Fifth street.)

Pennsylvania, Easton. **Chipman Knitting Mills**; capital increased to $1,200,000.

Hatfield. **Taubel Brothers**; three story addition, 48 x 70 ft.; 100 x 50 ft. dyehouse, engine and boiler room.

Linfield. **Progressive Knitting Mills**; new mill for finishing plant.

New Cumberland. **Belgrade Knitting Mills**; incorporated; $100,000; David Smarr, pres.; Joseph B. Smarr, treas.; Morris Smarr, supt.; purchased building occupied by company; will erect dyehouse.

Norristown. **Norristown Hosiery Mills**; increased capital to $100,000; purchased building for addition to plant; installed 200 knitting machines.

Philadelphia. **Brown-Phelps Hosiery Co.**; capital increased to $500,000; operating 350 knitting, 25 sewing machines, 35 loopers.

Philadelphia. **Continental Mills, Inc.**, Lena and Armat streets, Germantown; added 1,300 spindles, 2 sets of woolen cards, 6 tables, two heads each.

Philadelphia. **Colonial Knitting Mills, Inc.**, Stokey street and Hunting Park avenue; capital increased to $500,000; operating 600 knitting, 80 sewing machines, 75 loopers.

Philadelphia. **Glen Knitting Co.**; capital increased to $400,000.

Philadelphia. **Gotham Silk Hosiery Co.**; added 50 full fashioned machines, 100 latch needle machines, 25 loopers, 25 seamers, 2,000 silk winding spindles.

Philadelphia. **Puritan Knitting Mills of Pa.**; I. S. Titelman & Sons; B. Ziff, supt.; added 35 knitting, 22 sewing machines. (Partnership between Israel S. Titelman and Harry Neuman, dissolved.)

Sellersville. **Beattie Hosiery Co.**; men's and women's hosiery and stocking feet; new dyeing plant.

Selingsgrove. **Selingsgrove Hosiery Co., Inc.**; capital increased to $70,000; addition for drying room, 33 x 34 ft., knitting room, 40 x 65 ft.; added 72 240-needle knitting machines for ladies' silk hose.

Shippensburg. **Whorley & Thrush**; men's half hose; 12 knitting machines, 2 loopers, 3 ribbers. (Formerly of Middle Spring, Pa.)

Temple. **Maidencreek Hosiery Co.**; increased capital to $99,000.

Rhode Island, Woonsocket. **Gold Mark Knitting Co.**; purchased building for addition to plant; new dyeing and finishing mill, 100 x 175 ft.

South Carolina, Rock Hill. **Liberty Hosiery Co.**; increased capital to $50,000; new dyehouse and finishing plant.

Tennessee, Jellico. **Diamond Hosiery Mills**; increased capital to $100,000.

Knoxville. **Tennessee Mills**; erecting two story addition, 70 x 30 ft.

Wisconsin, Appleton. **Zwicker Knitting Mills**; moved to larger quarters at 736 Richmond street; additional equipment; operating 50 knitting and 5 sewing machines.

Kenosha. **Goodwear Hosiery Co.**; addition, 36 x 44 ft.; 19 knitting, 3 sewing machines, 3 loopers.

Merrill. **Merrill Knitting Co.**; three story addition, 25 x 75 ft.; 4 new knitting machines.

Milwaukee. **Everwear Hosiery Co.**; moved to new five story mill, Tenth street; installed 200 new knitting machines.

Milwaukee. **Van Dyke Knitting Co.**; increased capital to $250,000.

Three Rivers. **Hand Knit Hosiery Co.**; H. Cheseboro, pres. and mgr.; L. A. Bentz, vice-pres.; R. H. Ehaney, sec. and treas.; added carding and spinning machinery, cone winders, reels, spoolers and twisters for manufacturing yarn made from waste yarn from this plant and also main plant at Sheboygan, Wis.

Canada, Ontario, Chatham. **American Pad & Textile Co.**; knitting mill; mittens, gloves and knit tubing; 2 cylinder knitting, 100 sewing machines, 4 ribbers; buy 3s, 12s and 24s cotton yarns.

London. **Holeproof Hosiery Co. of Canada, Ltd.**; new four story addition, 185 x 150 ft., with dyehouse and power plant.

SILK

Connecticut, Bethel. **Berfelden Mills**; addition 85 x 40 ft.; 40 new looms.

Willimantic. **H. K. & W. A. Washburn**; silk throwing; new mill, 125 x 50 ft. (Branch of South Coventry, Conn.)

Illinois, Kincaid. **Oscar Heineman Co., Inc.**, new mill under construction. (Branch of Chicago Plant.)

Maine, Richmond. **Bloomsburg Silk Mill**; purchased mill. (Branch of Bloomsburg, Pa.)

Massachusetts, Holyoke. **Goetz Silk Mfg. Co.**; two-story addition, 46 x 147 ft.; equipped with throwing machinery.

New Jersey, Bloomsbury. **John H. Meyer Silk Mills Co.**; addition 70 x 80 ft.; 60 new looms, 2 warpers, 2 winders, 2 quillers.

North Bergen. **J. A. Migel**; new two-story mill, 80,000 sq. ft.; 360 box looms. (Branch plant, to be known as North Bergen plant.)

Garfield. **Barston & Caswell, Inc.**, 83 Monroe street; high grade georgettes, crepe de chines, shirtings and dress goods. (Branch of Paterson plant.)

Hawthorne. **Barston & Caswell, Inc.**; Cesar Decrane, pres.; Albert J. Barston, treas.; new mill. (Branch of Paterson plant.)

Paterson. **Barston & Caswell, Inc.**; Cesar Decrane, pres.; Albert J. Barston, treas.; leased mill at 42 Putnam avenue.

Paterson. **B. Bomstein**, 72 Putnam street; $45,000; B. Bomstein, pres. and treas.; M. Bomstein, buyer; added 320 spindles, 40 looms.

Paterson. **Buyer Bros. & Stein**, 181 River street; georgettes, peau de cygne and crepe; added 6 looms; operate 24 spindles.

Paterson. **Criterion Silk Mfg. Co.**, 24 Kentucky avenue; added 22 broad silk looms.

Paterson. **Eclipse Silk Mfg. Co., Inc.**, 122 Jackson street; increased capital to $400,000; Charles A. Isleib, pres.; Charles W. Meachem, treas.; ribbons of all kinds; 64 looms.

Paterson. **Harvard Silk Co.**; moved to Cross & Ellison streets; equipment increased.

Paterson. **Helvetia Silk Mill**; ribbons; capital increased to $400,000; E. W. Baer, acting pres.; Thos M. Scheider, treas.; J. D. Moutmeat, supt.

Paterson. **Herman Silk Mills**, 403 Summer street; georgette, crepes and shirtings; equipment increased to 40 box looms; Herman Levine, buyer. (Formerly Berlette Silk Co.)

Paterson. **International Veiling Co.**; finishing and dyeing; two-story addition, 40 x 155 ft.

Paterson. **Madison Silk Mfg. Co.**; Strange Mill; broad silks; 132 looms; electric; sell direct. (Annex Cedar Cliff Mill, Haledon, N. J.)

Paterson. **Paramount Ribbon Co.**, 139 Fifth avenue; $47,600; Ralph J. Baer, pres.; Anna L. Baer, treas.; John C. McMullin, supt.; 10,00 spindles, 30 looms; erected addition.

Paterson. **Silk City Silk Co.**; moved to 37-41 Fulton street; added four new looms.

Paterson. **N. Ullman & Co.**; purchased 50-loom broad silk plant operated by John Faust; added 20 looms; Mill No. 1 at 220 Straight street.

Paterson. **Yokohama Silk Co.**; purchased five-story new mill, containing 200,000 sq. ft. of floor space; will occupy part of mill.

Phillipsburg. **Jerico Silk Mills**; purchased building at Second and Broad streets to be operated as Claire Silk Mills; throwing and weaving; 5,000 spindles, 250 looms.

Union Hill. **Pioneer Braid Mfg. Co., Inc.**, 115 Park avenue; $100,000; Harry Adleman pres. and treas.; purchased new mill with dyehouse; silk, cotton and mohair braids, soutaches, silk and cotton laces; 600 braiders; buy 20/12 cable and hawser yarns, 40/2 C. P. mercerized yarns. (Moved Meriden, Conn. plant to Union Hill.)

New York, Fonda. **W. J. Weeper Co.**; two-story mill, 40 x 130 ft.; added 160 spindles, 1 180-inch tricot machine, 2 warpers; electric power.

Fultonville. **Mohawk Silk Fabric Co.**; addition to main mill, 100 x 35 ft.; dyehouse 50 x 35 ft.; power house, 50 x 40 ft.

Gloversville. **Normandie Silk Mills, Inc.**; capital increased to $300,000; three-story mill, 150 x 50 ft.; two-story dyehouse, 100 x 30 ft.; large boiler house.

Ithaca. **Ernest & Herman Levy**; Ithaca Silk Mill; silk threads spun; 40,000 spindles; steam and electric power. (Branch plant.)

Nunda. **Canisteo Silk Co.**; new two-story mill, 76 x 103 ft.; 5,000 spindles for silk throwing. (Branch of Canisteo, N. Y. plant.)

Watertown. **Watertown Silk Mfg. Co.**; two-story mill, 60 x 180 ft.; 150 looms.

Pennsylvania, Allentown. **Iron Warp Silk Mills, Inc.**; two-story addition, 68 x 125 ft.; 58 new looms.

Allentown. **Miesch Mfg. Co.**, Paterson, N. J.; purchased plant of Klotz & Bregener.

Archbald. **Clemens Silk Co.**; $150,000; added 58 looms.

Columbia. **Reliable Silk Mfg. Co.**; added 35 new looms for novelty silks, brocades, crepe de meteor, lining and tie silks.

Duryea. **Duryea Silk Mill**; formerly Duryea Silk Throwing Co.; now operated by Bloomsburg, (Pa.) Silk Mill.

Easton. **Edirose Silk Mfg. Co., Inc.**; three-story mill, 63 x 120 ft.; 60 x 118 building for throwing plant; 100 new looms.

Easton. **Haytock Silk Throwing Co.**; installed machinery for throwing crepe twist organzine.

Easton. **Robins Mfg. Co.**; erecting new mill; will add 40 new looms.

Easton. **Stewart Silk Co.**; addition; 1,500 new spindles, 150 looms.

Honesdale. **Athena Silk Co.**; purchased building; P. C. Morrell, buyer; broad silks; 400 spindles, 40 to 60 looms. (Branch of Paterson plant.)

Hummelstown. **Pelgram & Meyer**; purchased building at South Hanover street; G. H. Repert, supt.; broad silks; 70 looms. (Branch of Paterson, N. J.)

Macungie. **Macungie Silk Co.**; one-story addition, 50 x 100 ft.; 840 new spindles, 11 looms.

Mauch Chunk. **Mauch Chunk Silk Co.**; capital increased to $250,000.

Patton. **E. & H. Levy, Inc.**; two-story addition, 50 x 75 ft.; 3,500 new spindles.

Pen Argyl. **Pen Argyl Silk Co.**; addition being erected; will install 14,000 spindles.

Philadelphia. **Van Straaten & Havey**; four-story mill, 55 x 115 ft.

Reading. **Vanity Fair Silk Mills**; $300,000; six-story mill, 160 x 60 ft.; added 76 looms.

Scranton. **Empire Silk Co.**; new mill, 30,000 sq. ft. of floor space; 150 looms added.

Scranton. **Scranton Silk Co.**; new mill to be erected. (Branch of United Ribbon Co., Paterson, N. J.)

Summit Hill. **Mauch Chunk Silk Co.**; will install between 10,000 and 12,000 spindles during 1920. (Branch of Mauch Chunk, Pa., plant.)

Rhode Island, Central Falls. **Fortuna Silk Mill, Salembier & Clay, Inc.**; four-story addition, 80 x 40 ft.; weave shed, 40 x 170 ft.; 680 new spindles, 88 looms.

Pawtucket. **Rhode Island Textile Co.**; two-story addition, 60 x 100 ft.; added 300 braiding machines.

Valley Falls. **Fortuna Silk Mill, Salembier & Clay, Inc.**; crepe twists; purchased building; 5,000 spindles. (Branch of Central Falls, R. I., plant.)

Canada, Ontario, Galt. **Riverside Silk Mills**; three-story addition, 160 x 52 ft.; equipped with silk throwing machinery.

MISCELLANEOUS

Massachusetts, Attleboro. **R. Wolfenden & Sons**; enlarged dyehouse; third floor added to main plant, 130 x 40 ft.

Missouri, St. Louis. **Lowell Bleachery**; erecting three story addition, 100 x 100 ft. (Branch of Lowell, Mass.)

New Jersey, Newton. **Sussex Print Works**; French Dyeing & Finishing Co., Frankford, Pa., and Sussex Print Works, consolidated; plant No. 1 at Newton; plant No. 2 at Frankford; dye and print in the piece, silk, cotton, wool and mixed goods.

Passaic. **Weiss, Willheim & Co.**, Passaic avenue; $200,000; William Willheim, supt.; new dyehouse, bleachhouse and roller print department on broad and narrow silks; capacity increased in handblock printing, discharge and mastik work; new finishing plant.

Paterson. **Washington Piece Dyeing & Finishing Co.**; incorporated; $500,000; Herman Geller, pres. and treas.; piece dye; will also operate printing plant in March or April, printing all kinds of textiles.

Union Hill. **Union Hill Silk Finishing & Dyeing Co.**; new two story mill.

Weehawken. **William Messmer Silk Finishing Co., Inc.**, 223 Hackensack Plank Road; $100,000; Wm. Messmer, Jr., pres.; Wm. Messmer, Sr., treas. and supt.; will erect new plant this spring.

New York, New York. **The Stienen Dyeing Co., Inc.**, Fourteenth street and Ninth avenue; winding and glazing cotton yarn; 400 spindles. (Branch plant.)

Pennsylvania, Philadelphia. **Boger & Crawford**; three story mill, 97 x 130 ft.; one story mercerizing plant, 70 x 164 ft.; one story warehouse, 78 x 60 ft.

Philadelphia. **Oxford Dye Works**, 1410-12 East Oxford street; $75,000; addition to dyehouse, 19 x 103 ft.

Tennessee, Memphis. **American Finishing Co.**; addition, 200 x 100 ft.; can handle anything up to 44 inches wide in bleaching, dyeing and finishing line.

Important Changes

COTTON

Alabama, Alexander City. **Alexander City Cotton Mills**; B. B. Comer, pres.; purchased by Avondale Mills.

Lindale. **Massachusetts Mills in Georgia** purchased by Massachusetts Cotton Mills, Lowell, Mass.; $5,000,000; Augustus P. Loring, pres.; Edward Lovering, treas.; Wm. A. Marshall, supt.; 102,016 spindles, 3,194 looms.

Massachusetts, Holyoke. **Bullard Thread Co.**; incorporated; $150,000; Frederick A. McLane, pres. and treas. (Formerly W. H. Bullard Thread Co.)

Mississippi, Laurel. **Laurel Mills**; reincorporated; $600,000; M. E. Greer, pres. and treas.; C. M. Greer, vice-pres. and assist. treas.; W. O. Hedgepath, supt.; 21,696 spindles, 640 narrow looms; electric power.

New Jersey, Bridgeton. **W. P. West & Son.** (Closed plant and moved machinery to Gambril Mills, Havre de Grace, Md.)

New York, West New Brighton. **Barrett, Nephews & Co.**; shade cloth business purchased by Claysmith Co.

North Carolina, Double Shoal. **Double Shoal Cotton Mills**; reorganized; $100,000; Lester O. Harrick, pres.; A. M. McMurray, sec. and treas.; S. B. Eskridge, supt.; carpet warps, twines, etc.; 3,200 spindles.

Lincolnton. **Rhodes Mfg. Co.**; reorganized under name of Anderson Mills, Inc.

Pennsylvania, Philadelphia. **Downs Mfg. Co.**; plant destroyed by fire; business discontinued.

WOOLEN

Massachusetts, East Dedham. **Dedham Mills**; woolen and worsted yarns. (Succeeded Dedham Carpet Mills.)

Grafton. **Grafton Woolen Mills**; Herbert Taylor, prop.; R. F. Weeks, supt.; custom carbonizing, picking and carding; 4 sets of cards, 2 pickers. (Office, 185 Summer street, Boston.) (Formerly Herbert Taylor & Co.)

Worcester. **Bradley Worsted Co.**; name changed to Sterling Worsted Mills; fine fancy worsteds and piece dyes for men's wear; 48 looms at Bradley street plant; weaving plant at 66 Beacon street; 20 looms.

New Hampshire, Hinsdale. **Hinsdale Woolen Mills**; controlling interest purchased by Richard C. Averill, Brattleboro, Vt.; R. A. Weeks, supt.; cashmerettes; 7 sets of cards, 60 looms, 2 pickers.

New Jersey, Camden. **Highland Worsted Mills, Ninth and States streets**; transferred to Highland Worsted Co.; $1,500,000; Thomas H. Ball, Philadelphia, pres. and treas.; Frank H. Benrath, sec. and assist. treas.; Roland F. King, gen. mgr.; high grade worsted yarns for the weaving trade.

Pennsylvania, Philadelphia. **Bolger Bros.**, 1139 East Chelten avenue, Germantown; custom carding, garnetting and picking; purchased plant of Joseph Shaw; installed additional cards and garnetts.

Philadelphia. **Salford Worsted Mills**, 3805 Frankford avenue; $50,000; Herbert M. Walker, pres.; F. A. Tracy, treas.; D. G. Orme, agent; worsted cloth; 40 looms; buy 30s, 40s, 50s two-ply cotton and worsted yarns. (Formerly Salford Mills Co.)

Worthington. **Peter Graff & Co., Buffalo Woolen Mills**; incorporated; $200,000; Peter Graff, 3d, pres. and gen. mgr.; J. Frank Graff, Jr., vice-pres. and sec.; J. W. S. Clark, supt.; blankets, flannels and yarns; 3 sets 60-inch cards, 1,800 spindles, 20 broad, 2 narrow looms; dyeing and finishing.

Rhode Island, Pascoag. **A. L. Sayles & Sons Co.** (Succeeded Fred L. Sayles & Co.)

KNIT

Illinois, Chicago. **Midland Knitting Mills.** (Consolidated with Imperial Knitting Co., Milwaukee, Wis.)

Michigan, Ypsilanti. **New Way Knitting Co.**, 111-117 Pearl street; O. C. Trask, agent; O. J. Mooney, supt. and buyer; men's, women's and children's hosiery; 35 ribbers, 10 flat and 75 circular machines, 10 loopers, 15 sewing machines; buy cotton and lisle and 10s and 60/2 wool and worsted yarns. (Branch of Williamston, Mich. plant; purchased and now operated by the "Industrial Branch" of the United Brotherhood of Maintenance of Way Railway and Shop Laborers.)

New York, Brooklyn. **Allandale Knitting Mills**, 35-50 Stockton street; cardigan jackets and sweaters, golf coats and jerseys. (Formerly Henry Gernshym & Bro.)

New Jersey, Jersey City. **United Knitting Mills**, 6 Rose avenue; reorganized; women's and children's fancy knit goods; 20 spindles, 5 knitting and 4 sewing machines, 1 looper. (Plant moved from Brooklyn, N. Y.)

Brooklyn. **Rubin Bros., Knitting Co., Inc.**, 67 Thirty-fourth street; incorporated; $50,000; neckties, knitted mufflers and sweaters. (Taken over business of Rubin Bros.)

Waterford. **Ford Mfg. Co.**; plant sold to Robert Reis Co.; John W. Ford, pres. and gen. mgr.; equipped with 100 knitting, 200 sewing machines.

Pennsylvania, Mount Royal. **The Dover Hosiery Co.** (Branch of Dover, Pa. plant; discontinued.)

Philadelphia. **Wear Best Knitting Co.**; moved to Jasper & Adams streets; operating 126 knitting, 10 sewing machines, 15 loopers.

Tennessee, Athens. **Liberty Hosiery Mills.** Consolidated with Athens Hosiery Mills.

SILK

Connecticut, Gurleyville. **E. L. Smith**; silk throwing; 2,000 spindles. (Plant sold to Champion Silk Co., Pottstown, Pa.)

New Jersey, Hoboken. **Carl Schoen Silk Corp.**; R. & S. Silk Mill; F. A. Myers, gen. mgr.; broad silks, tie silks, dress silks and shirtings; 50 Jacquard and shaft looms. (Formerly Reiling & Schoen, Inc.)

Paterson. **Northern Silk Mills, Inc.**, New Dunlop Mill; broad silks; 66 looms. (purchased by John Marcus.)

Paterson. **J. M. Woodward**, 730 Madison avenue; sold to J. R. Mallinson & Co., Inc.

New York, Brooklyn. **Realsilk Fabrics Corporation**, 785-787 Myrtle avenue. (Formerly located at 203-205 Green street, New York.)

Pennsylvania, Bangor. **Pennsylvania Silk Co.**; plant sold to Penn-Allen Silk Co., Inc.

Moscow. **A. A. Reiling, Inc.**; silk throwing; 16,000 spindles. (Formerly H. W. Kimble & Co.)

Mount Carmel. **Shindel Silk Corp.**; George C. Graeber, pres.; W. H. Shindel, sec. and treas.; R. Rosendale, supt. (Formerly Shindel-West & Co., Inc.)

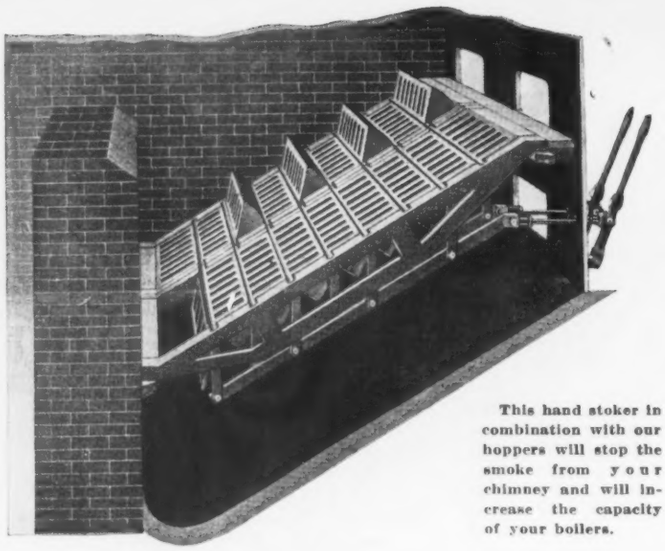
Scranton. **Carl Schoen Silk Corp.**; F. A. Myers, gen. mgr.; broad silks, also throwing; 300 looms. (Formerly Reiling & Schoen, Inc.)

Rhode Island, Providence. **William Stoppard & Co.**, 1306 Broad street; laces, veilings, dress nets, etc. (Plant removed from River Point.)

Valley Falls. **Carl Schoen Silk Corp.**; Penikees Mill; F. A. Myers, gen. mgr.; dress silks, wool filled and linings; 360 looms. (Formerly Reiling & Schoen, Inc.)

MISCELLANEOUS

New Jersey, Carlstadt. **Schetty Bros.**; dyers; ribbons, hat bands and tapes. (Formerly at Jersey City.)



This hand stoker in combination with our hoppers will stop the smoke from your chimney and will increase the capacity of your boilers.

Guarantees Offered You Are

1. To evaporate 10 pounds of water (from and at 212 degrees F.) per pound of dry coal.
2. To increase rated capacity of Boiler from 30 per cent. to 75 per cent.
3. 70 per cent. combined Grate and Boiler efficiency with Boiler in good working condition.

(Above are based on dry coal containing 14,000 B.t.u.'s per lb.)

4. Eliminate necessity of cleaning and slicing fires by old method.
5. To reduce customary smoke from 75 per cent. to 90 per cent. and comply with the requirements of the Department having jurisdiction over same.
6. A saving of at least 10 per cent. in fuel.
7. A saving of 40 per cent. in labor.

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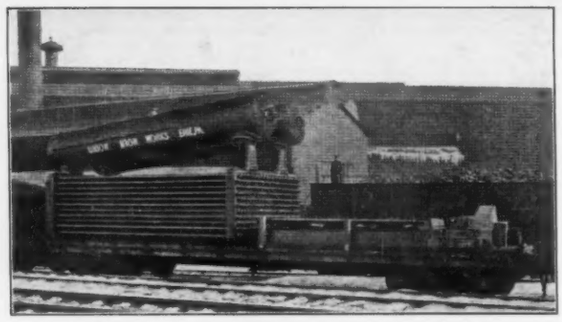
Vasil Steam Systems Co.

314 Washington Loan and Trust Bldg., Washington, D. C.



A 500 H. P. Union Water Tube Boiler Ready for Shipment

The 500 H. P. "Union" shown above gave such satisfactory results in service and in competition with other Water Tube Boilers of leading makers, that two re-orders followed within a short time—a common occurrence in our business. Union Boilers have *demonstrated* their superiority. Note these features:

1. Economy—because of special design of drums, unrestricted circulating area, great inclination of tubes.
2. Overload Capacity and Dry Steam—due to ample water storage and steam liberating surface.
3. Continued Service and Low Up-Keep—due to purifier in boiler entirely out of path of circulation and fire, keeping injurious deposits away from fire plate surface.
4. Corrugated Flange—takes up distortion due to unequal expansion and contraction within the boiler proper.
5. Headers—have no two thicknesses of plates or rivets in the fire.

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Union Iron Works, Erie, Pa.

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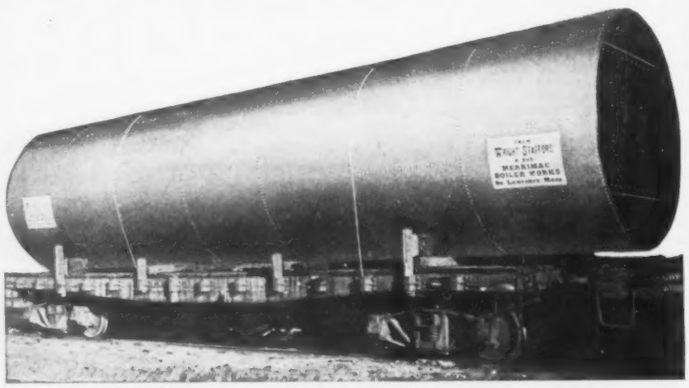

Oil Storage Tank 10 ft. diam. x 42 ft. long
Capacity—24000 Gal.

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STEEL TANKS { Any Size, Shape or Thickness For Water, Oil, Soap, Air or Steam

Let Us Figure On Your Requirements

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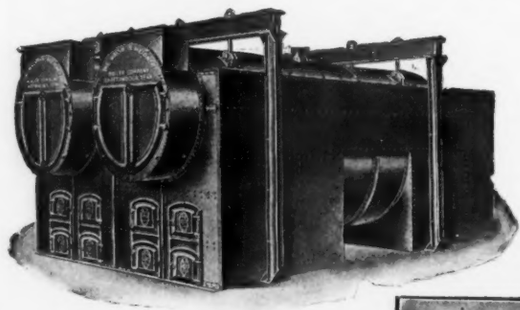
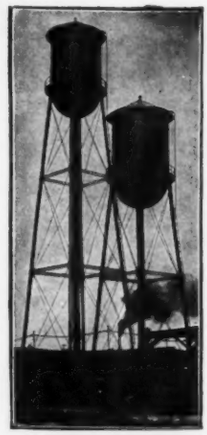


Towers and Tanks
Storage Tanks
Pressure Tanks

OF ANY DESCRIPTION



Structural Steel Work

THE WALSH & WEIDNER BOILER CO.

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New Machinery and Processes

Large-scale operations on standard equipment have been the rule during the past year among the textile equipment concerns. With new orders coming in faster than accumulated orders could be cleaned up, time and effort were not generally available for the experimental work necessary in developing new machines and processes. Facilities released from war work have been readjusted to regular lines, and new records of production have been made in many cases. There have been exceptions to the general rule, however, and some concerns have brought out new equipment, some of which is briefly described on the following pages.

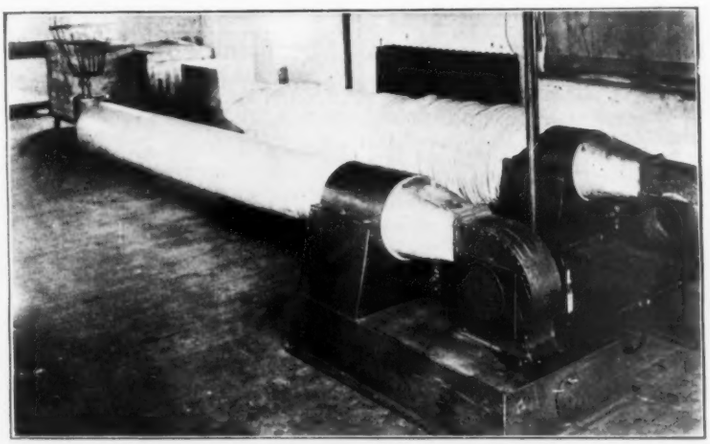
KNIT CLOTH DRYER

Improved Machine for Handling Any Circular Cloth

The illustrations show an installation in the Kent Knitting Mills, Brooklyn, of the improved drying machine brought out by the Mandel-McIver Co., 1805 First avenue, New York City. The piece of goods to be dried is drawn on the horizontal pipe of the dryer after coming from the extractor. It is then pulled up over a spreader, which gives it the proper width, at the same time allowing the hot air to escape through the mesh of the material being dried, circular knit cloth as the cloth passes over the spreader.

One of the chief improvements claimed is in the horizontal pipe, which is triple insulated and air cooled, so that while the inside temperature may rise as high as 500 degrees Fahr. the outside temperature of the pipe will not rise much higher than that of the air of the room. This insures that goods, while hanging on the horizontal pipe prior to being drawn off and dried, will not be scorched nor have creases nor wrinkles dried into them by the highly heated air inside of the pipe.

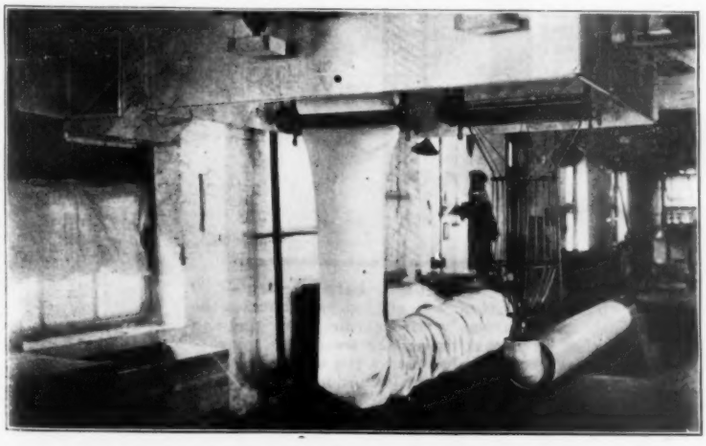
Other features to which attention is called is that the machine dries quickly with high temperature air blast. It burns gas in an adjustable blue flame hot blast gas burner which heats air from the blower to a temperature of from 100 degrees to 500 degrees Fahr. The cool pipe holds cloth on either horizontal or vertical pipe type which will not scorch or press creases or wrinkles into the cloth. It is efficient because no heat is radiated before the hot blast reaches the cloth as it is drawn up over the spreader. The machine has dried sixty yards of 54-inch, 16 ounce knit cloth at a temperature of 400 degrees in twenty-five minutes, operating by one-half horsepower motor and using 200 cubic feet of gas costing 16 cents.



KNIT CLOTH DRYER, SHOWING HORIZONTAL PIPE, HEATING ARRANGEMENT, BLOWER, ETC.

removing practically all moisture from the cloth. The goods are then rolled up by the take-up mechanism. The floor space occupied by each unit machine is about 14 feet by 36 inches, and the ceiling height is about 9 feet.

The dryer comprises a horizontal galvanized pipe for holding the goods prior to their being dried. A direct-connected motor driven blower supplies the air which is heated by means of an adjustable hot blast blue-flame gas burner, which raises the air to the necessary temperature, varying from 100 degrees to 500 degrees Fahr. This heated air leaves the horizontal pipe through an elbow, from which it is discharged upward directly against the inside of the

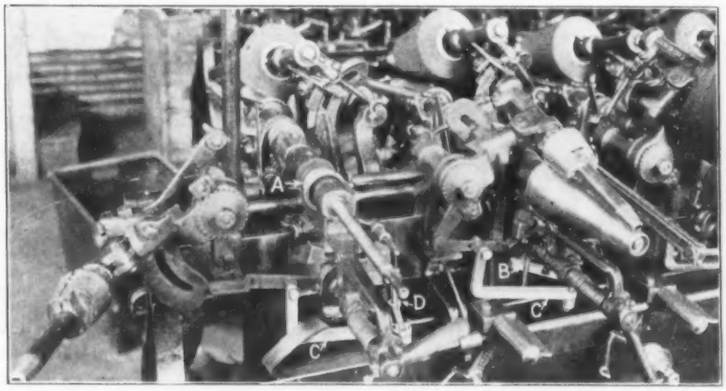


KNIT CLOTH DRYER, SHOWING EXHAUST FAN FOR REMOVING STEAM FROM HOOD TAKE-UP, ETC.

STARTING DEVICE

Attachment for Camless Cone Winders Which Allows Increased Speed

The accompanying illustration explains an attachment for camless cone winders recently brought out by Lodge & Co., 4658 Dittman street, Frankford, Philadelphia, Pa. It is known as the Moore starting device, and has been in operation in one mill for several months where it allowed an increase of speed of the machines of more than 25 per cent., with no complaints of broken ends.



MOORE STARTING DEVICE FOR CAMLESS CONE WINDING MACHINES

Referring to the illustration, the mechanism contains an extra pulley, A, inserted on the drive shaft of the cone to act as an idler, in such a manner as not to result in interference with existing parts, nor require fitting to them. It uses a ¾ inch belt. The bracket, D, which supports the belt operating mechanism, is mounted by means of screwing to two tapped holes already in this type of winder. From this bracket is operated the belt shifter, B, which moves the belt off and on to the pulley, A, as required in starting and stopping, in such a manner as to prevent shock to the yarn which results in breakage. Control of the belt shifting mechanism is obtained through operation of the arm, C, connected to the starting lever of the machine.

Some breakage of yarn is commonly met with on winders, due to failure of yarn cones to make a perfect contact with the driving cone at the start. No matter how gradually the yarn is lowered into contact with the revolving driving cone, the imperfect contact with the yarn cone often obtains but a localized grip which results in breakage. The makers of the Moore starting device claim that by means of this mechanism the starting is always uniform, with perfect contact of the driving cone against the yarn cone, in consequence of which localized strain on yarn and consequent breakage are largely eliminated.

The simplicity of the device commends it to anyone interested, and also the claim that it requires but one-half hour per cone to apply the fixture complete. The attachment may be installed without stopping more than two cones on a machine at a time.

CLOTH CARBONIZING

Continuous Saturating, Squeezing, Drying and Carbonizing System

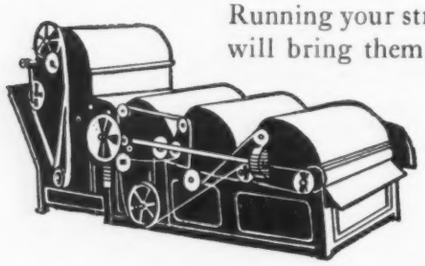
The "Hurricane" continuous process of carbonizing has been developed by the Philadelphia Drying Machine Co., Philadelphia. The cloth is fed into the saturating tank in a smooth, open condition, and the length of time in the solution can be regulated by governing the depth of liquor and the number of rolls used. The surplus liquor is uniformly removed by means of the heavy rubber-covered squeeze rolls, and the cloth passes from these directly into the drying and carbonizing machine. The drying portion of the machine is so designed as to give uniform drying results, and the cloth is thoroughly dry before it goes into the carbonizing chamber.

Saturating Tank

The complete equipment consists of apparatus for accomplishing the four operations of saturating, squeezing, drying and carbonizing. After passing over a spreader, the cloth enters the saturating tank, which contains a removable cage provided with a series of rollers. Acid proof bronze is used for the roller shafts, bearings and all metal parts within the tank. The rollers are located alternately near the top and bottom of the cage, and the cloth soon becomes thoroughly saturated, as it travels up and down a number of times through the acid. As it emerges from the liquor, the cloth passes between heavy rubber-covered squeeze rolls, the pressure of which is controlled by

Strips are worth their weight in gold!

STRIPS are not waste! They are the cotton industry's diamond in the rough. They can be used very profitably and economically without the slightest lessening of quality in your product.

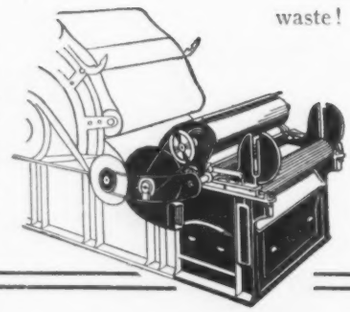


Running your strips through the Gordon Cleaning Machine will bring them back to a grade equal to the cotton from which they were made. Mix them with broken roving waste and comber noil, if you have it, and you'll spin a most surprising yarn!

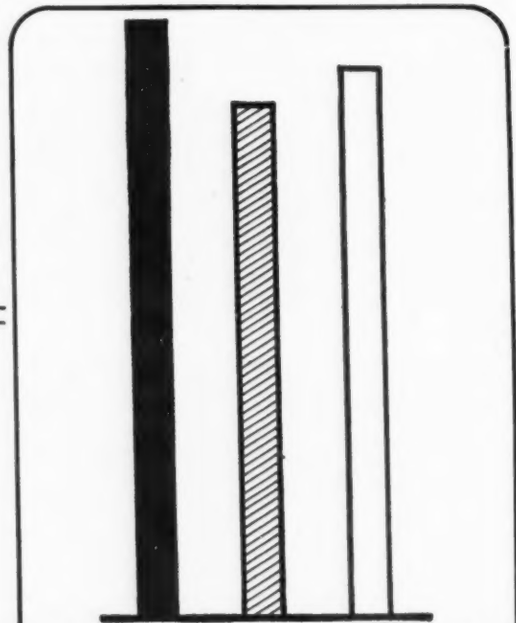
Savings as high as 35% possible

By the simple process described above, you can reduce your waste from 35% to 20%, if you comb the entire product. And even though you may not comb, you can still make a 3% to 5% reduction in your waste, by the use of the Gordon Cleaning Machine. What a factor that is in these days of high material cost and low production! How easily does this equipment repay you the investment! How much better you can make your product! And, what a long step it is toward cost-reducing efficiency and the elimination of needless waste!

THE Gordon Card Attachment produces astonishing results with all manner of material. It helps the card—saves card clothing and produces a higher grade product even with inferior raw material.



It will profit you to ask us for more information — and we'll gladly inform you.



NOTE: The solid black bar represents 500 pounds of cotton. The shaded bar indicates the shrinkage caused by tare, carding, stripping and other steps that now make waste and increase costs. The white bar shows the saving that can be effected by means of the Gordon-Hay Cleaning Machine and Card Attachment — two short cuts to textile efficiency.

GORDON-HAY CO., Inc.

UTICA, NEW YORK

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levers and weights. The surplus acid is thus removed and drained back into the tank. Attention is called to the fact that the cloth is spread out and free from wrinkles when passing through the squeeze rolls.

Drying Machine

The cloth upon leaving the saturating tank travels into the drying portion of the machine. In this first section it passes over a series of wooden lagged rolls arranged alternately near the top and bottom of the machine. Both the top and bottom rows are positively driven by means of bevel gearing, so that there is no strain on the cloth. While passing through this drying section, the cloth is subjected to the drying action of large volumes of air recirculated alternately through the cloth and the heating coils by means of large steel blade fans. The heating surfaces are so proportioned that the greatest amount of evaporation takes place in the first portion of the machine where the goods enter in a wet state. An exhaust fan is also provided to remove the excess moisture from this section.

Carbonizing Compartment

The carbonizing section is separated from the drying section by means of a steel partition arranged with a slotted opening for the cloth to pass from one section to the other. Because of the fact that the goods enter the carbonizing chamber thoroughly dry, it is possible to maintain there a dry, baking heat which produces efficient carbonizing results.

MOTOR PROTECTION

Equipment That Keeps Motors Clean and Reduces Temperature—New Air Mixer

The fact that practically all textile manufacturing processes are attended by more or less dirt and flyings, makes the improved motor protection system, developed by the Motor Protection Co., Pawtucket, R. I., of particular value to textile mills. The device has been thoroughly tried out in numerous plants, with the most satisfying results in keeping motors clean, reducing the temperature, and increasing efficiency. Owing to the high humidity in many textile rooms, there was sweating of the pipes in cold weather, but this has now been taken care of by a simple combination dust collector and air mixer, which takes a certain quantity of air from the outside and mixes it with that inside.

Some manufacturers cover their motors with wooden boxes, or some similar coverings. While this may keep considerable dirt, lint, or fly away from the motor, it also keeps the motor boxed up so effectively that cool air is also excluded, and the motor heats up and bakes the insulation, causing a shutdown.

This system consists of sheet metal casings which enclose both ends of the motor and make it dust-proof, a fan bolted to the end of the armature shaft, a dust separator, and an air intake pipe running to a clean air supply, preferably out of doors. When the motor is started the fan draws cool, fresh air in through the dust separator and forces it against the rear end of the motor, through the windings and out through the laminations. Part of the air is forced through a by-pass to the front hood so that the same action takes place on both ends of the motor. As a result, the motor is kept clean and has a large volume of cool air constantly passing through it, carrying away the heat as fast as it is generated.

The new improvement prevents the sweating of the air pipes in rooms where the humidity is high. A combination dust collector and air mixer has been devised by means of which a certain quantity of air can be taken from the outside of the room and mixed with that inside. A diagram of the device is shown in the illustration. It will be noted that no matter how the air mixer is arranged, there is always a full supply of air to the motor. When the outside temperature is so low that even a small amount of air from outside would cause pipe sweating, all the cooling air can be taken from the inside of the room. In such extreme cases, the dust collector would have to be looked after more frequently than when pure air was taken from outside, but this can be easily and quickly done. The new combination dust collector and air mixer is furnished on all new motor protection equipment, and old installations can be easily equipped with it at a small expense.

WASTE BOX

Made of Galvanized Sheet Metal—Fits Any Frame

The higher value of waste has made it good manufacturing practice to provide better facilities for handling it, and the makeshifts that were formerly tolerated are giving way to standardized equipment. It is noted that this has a salutary effect on the operatives, who are more careful of this by-product of their work. In this connection the waste box shown in the accompanying illustration, which has been brought out by S. S. Getchell & Sons, tin cylinder specialists, of Woonsocket, R. I., is of interest.

STANDARDIZED WASTE BOX

The particular qualities of the new waste box are that it is strongly made of galvanized steel, providing long life; it has two compartments, thus doubling its utility; that it has a handy roll so that it may be hung on the end of the creel where it is out of the way and can be easily detached and emptied.

The stock used is 26 gauge galvanized steel. The box is 11¾ inches wide, 5¾ inches deep, 10½ inches high in the front and 15 inches high in the rear. The device does away with the makeshift wooden waste boxes which are costly to make and do not serve the purpose for which they are intended with nearly as much satisfaction as is given by the metal waste box which is standardized and easily obtained, and is much more convenient and economical.

POWER FLOOR SCRUBBING

Motor-Driven Equipment Does Work Rapidly and Inexpensively

The American Scrubbing Equipment Co., Chicago, has brought out the Finnell system for power scrubbing of mill floors. The system requires the use of a motor-driven scrubbing machine, a water absorber and a mop truck. This equipment is made in various sizes of units to fit with equal economy the needs of large and small mills.

The scrubber has a ring of brushes that revolves at a rate of speed sufficient to cover the floor rapidly, and yet not fast enough to throw the water. The larger models are equipped with tanks to carry an adequate supply of scouring powder and water, both of which are controlled by means of levers at the hands of the operator. In cases where the electric cable supplied with the scrubber is not long enough to reach from the closest electric light socket to the end of the space to be scrubbed, there is a sub-station provided which carries an additional length of wire to be added to that already on the reel of the scrubber.

Following the scrubber in the work of cleaning the floor comes the water absorber. This machine has a V-shaped squeegee; in the apex is a pump which picks up the water collected by the arms of the V and empties it into a receptacle provided for that purpose.

When the dirty water has been picked up, the floor is rinsed and wiped dry with mops which are kept clean through the use of the mop truck. This truck is made up of two water tanks; one containing clean water and the other receiving dirty water as it is wrung out of the mops. A screen in this compartment over which the wringer is placed keeps the mop out of the dirty water already in the tank. By this process the mop is kept clean so that it can absorb dirt loosened by the scrubber and not entirely removed by the absorber.

Scrubbing Under Machines

For scrubbing under machines, or other obstacles six inches or more from the floor, there is a small model scrubber designed to get under such objects. This machine is found to be very efficient in connection with scrubbing floors in textile mills.

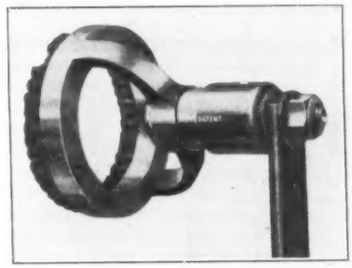
WOOL COMB ATTACHMENTS

Patent Skeleton Noil Brush and Drawing-Off Rollers

Two important improvements for combs have been developed by Taylor, Wordsworth & Co., Leeds, England, for whom Edward Jefferson, 23 South Second street, Philadelphia, Pa., is American agent. The first is a patent skeleton noil brush for Noble combs; and the second is a patent drawing-off roller attachment for Noble comb rollers.

Skeleton Noil Brush

The skeleton noil brush has been designed with the object of preventing the formation of hard wool pads, which are



CRAGG SKELETON NOIL BRUSH

the accumulations of noil, and are caused by the pressure of the brush against the pins and outer rims of the circles. These pads become so hard as to cause the brush sometimes to stand, and iron pickers are required for their removal, and often this entails the stopping of the comb itself. The friction produced by the ever-moving circles against these hard pads, especially if the brush is standing, causes the rubbing away of the outer rims of the circles, which means in time the premature renewal of the circles.

The expense of renewing comb circles is so costly as to be out of all proportion to the cost of the patent brush, which claims to obviate these difficulties. In the construction of the brush the interior has been removed, and only a rim remains, and this allows the small percentage of noil (which is apt to accumulate owing to the rotary motion of the brush) to pass through the inside of the brush in a soft and "noily" condition, and this can be seen and removed in a moment by the attendant, without stopping the brush, and put into the noil.

This is an important feature in the

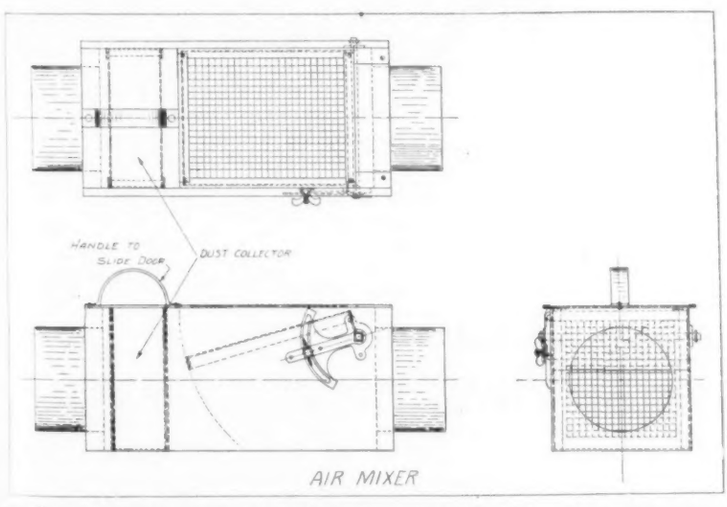


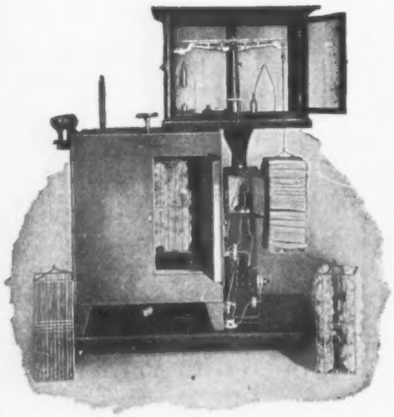
FIG. 2. MOTOR PROTECTION COMBINATION DUST COLLECTOR AND AIR MIXER WHICH STOPS SWEATING OF PIPES

EMERSON CONDITIONING OVENS

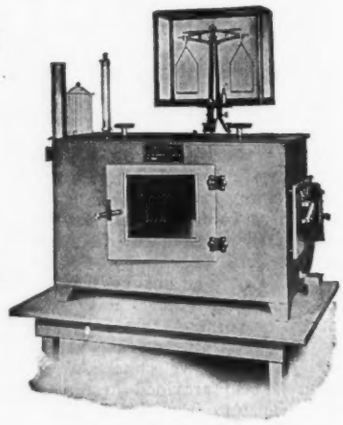
Do You Test Your Textile Materials for Moisture?

The Use of One of Our Conditioning Ovens for This Purpose Will Place Your Mill on an Efficient Basis

Neglect to Account for Moisture Results in Losses

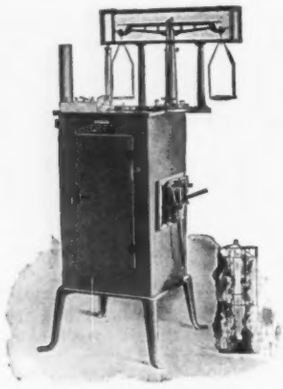


FOUR BASKET OVEN
(Baskets, 7 in. x 7 in. x 18 in. deep)



EIGHT BASKET OVEN
(Baskets, 3 in. x 3 in. x 6 in. deep)

There are three sizes of Emerson Conditioning Ovens, the Four Basket and the Single Basket Ovens being equipped with large baskets for bulky material and the Eight Basket Oven with small baskets.



SINGLE BASKET OVEN
(Basket 7 in. x 7 in. x 18 in. deep)

The Emerson Conditioning Ovens are all electrically heated and can be fitted to operate on either A. C. or D. C. circuits. *Write*

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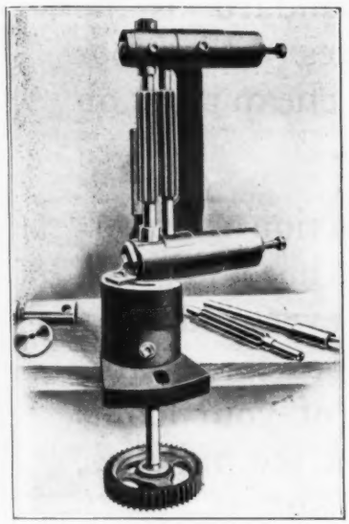
invention, inasmuch as under former conditions it was necessary to remove the brush before taking away the waste, and afterward to reset the brush, an operation requiring great care to avoid irregularities. An examination of the waste removed by this new brush showed only the very shortest of fibers, dust and vegetable impurities, while there was an entire absence of fibers of sufficient "top" length to be of any use. On the small circles it is noticeable that the brush gives material assistance to the work of the noil knives, by brushing the noil gradually toward the tips of the pins and thereby making the action of the knives more positive. The invention has been well received by operative combers.

Patent Drawing-Off Roller

The design of the patent drawing-off roller gives a great saving in leathers, bushings and rollers. Any oil that drops from the press roller necks can only flow down the spindle of the press roller,



PATENT DRAWING-OFF ROLLER FIXINGS FOR NOBLE COMBS

and it is practically impossible for it to get on the leathers. The bushings for the press roller are always pressed dead centers with the long roller, and there is no cutting of leathers because the press roller and long roller are always parallel. Among the advantages pointed out for this device are the following:

It is guaranteed a great leather saver; the bushings are round and are all inside the roller; the stand bracket cannot wear out of position, because the top and bottom roller brackets are bored out and the bushings turned to fit into both top and bottom bored-out brackets; the springs and bushings are all incased in the top brackets; there is more room for leathers. The device is easily cleaned and all parts are interchangeable.

HYDRO-EXTRACTOR

Direct Motor Driven Machine Provides for Safety and Economy

The Gillespie Motor Co., Paterson, N. J., has brought out the "Hercules" electro hydro-extractor. It is a self-contained machine which can be installed in any convenient location without regard to shafting, and thorough tests under plant conditions have shown it to be powerful, reliable, convenient for the operative, and economical. Many of its features are similar to those in the extremely heavy centrifugals that are used in the severe service of drying sugar and chemicals.

Standard extractors are made from 30 to 60 inches, with baskets having heavy perforated copper drums with steel reinforcing bands, semi-steel bottom heavily galvanized and cast bronze top. For special purposes, the basket can be made with steel drum, either plain or galvanized, or the basket can be rubber coated.

The motor is placed in a vertical position directly over the top ot the basket where it is free from all dirt and water, where the power can be applied direct to the extractor basket without the use of any intervening gears, bevel or cone friction drives. As a result of this, the machine has fewer parts. The arrangement affords the operator a clear open top which can be equipped with safety covers, interlocked with the motor control when desired.

The motor drives through the builders' special automatic centrifugal clutch by means of which the acceleration of the basket can be varied by changing the weight of the clutch shoes. Simply pushing the button starts the motor under no load and gradually brings the extractor up to speed. The actual starting of the extractor therefore is beyond the immediate control of the operator, preventing the burning out of motors and starting apparatus.

The brake, which is of the band type, has its tension regulated by a take-up bolt, so that when the operator applies the brake, the lever locks in the "on" position and the pressure applied by the brake is beyond the immediate control of the operator, as he cannot change the brake adjustment without screwing up the adjustment nut. The brake is accessible, self-locking, and this nut takes care of all adjustments and compensates for wear.

Some of the features to which the builders call attention are as follows: The extractor bearings are of the ball or roller type in a single housing under the basket. This means only one lubricating point with no possible chance of oil getting in the basket. In the motor driven type the motor is arranged for direct drive without any intervening gears or cone drives. The connection between motor and extractor is by a special automatic centrifugal clutch. A push button starts the motor up without any further attention and without the need of complicated starting apparatus. The motor thus starts under no load and the clutch shoes flying out by centrifugal force give a remarkably smooth and even acceleration to the extractor basket.

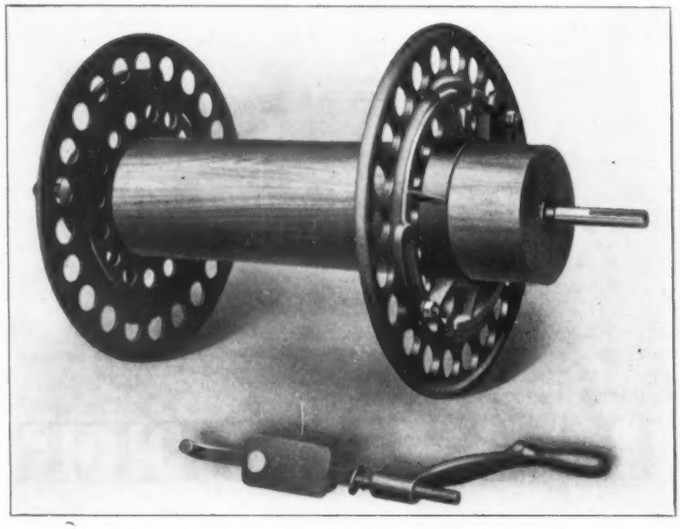
A special feature is the ease of dismantling the machine for basket bearing renewals or repairs. By simply draining the oil from the motor bearings, removing clutch blocks and disengaging brake band, the entire motor and motor support can be tilted back to clear the basket, which can then be lifted out of the curb.

The Gillespie Motor Company also makes these machines for direct belt drive. Direct motor driven and direct belt driven machines are practically interchangeable. For the belted machine, the motor is simply replaced by a vertical driving head from which the belt passes over a pair of idler pulleys and the ceiling countershaft furnished with the machine.

ADJUSTABLE BEAM HEAD

Strong and Durable Device Readily Clamped to Any Width of Warp

A new type of adjustable beam head has been patented by the Universal Winding Co., Boston, and is being brought to the attention of mills doing weaving. It has all the advantages of a one-piece head, eliminating the joint that is present on the ordinary two-part head. It fits tight and true on the beam, regardless of tensions and conditions due to wear and shrinkage, and it is of strong, durable construction.



BEAM HEAD THAT CAN BE QUICKLY AND ACCURATELY ADJUSTED

On account of the rapidity with which the head can be adjusted to any width, it is particularly adapted to worsted mills, where changes in fabric width are much more frequent than in other branches of the textile industry, but it also will find a large use in woolen mills and fancy cotton goods mills. The illustration shows a warp beam equipped with the improved head; also the clamping wrench which is the only tool required for adjusting it.

BETTER CARD STRIPPING

Refinement of Centralized Dustless Card Stripping and Cleaning System

Improved equipment for cleaning cards and handling waste and dirt has been brought out by William Firth, 200 Devonshire street, Boston, and is known as the centralized dustless card stripping and cleaning system. It not only gives cleaner sliver and waste of higher value, but also changes card stripping from one of the most undesirable jobs in the cotton mill to a more attractive form of employment, which is a matter of considerable importance under present labor conditions.

The centralized dustless card stripping and cleaning system is an evolution and in its present perfected form represents the best ideas developed in years of study and experience. The combination of vacuum with the standard stripping brush improved the working condition and enhanced the value of cylinder and doffer strips, separating the dirt from them and leaving the lint clean and fluffy. It also served to keep the card clothing clean and the wire bright. Vacuum provided the facilities for cleaning between flats, around small working parts, under the cylinder, etc., and conveying the waste to the central station. These results have been accomplished with apparatus that uses a minimum of power and at little expense for operation and maintenance.

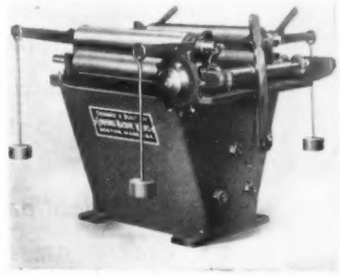
The latest development is a pair of dagger-shaped stripping stands which engage in a special locking device on the ends of the stripping roll and hold the brush housing in an upright position, the brush securely in perfect alignment, and at a uniform depth in the wire during the stripping process. This device insures more perfect stripping, and the best condition of the wires. It prevents damage to the brush and to the clothing of cylinder and doffer; also to the card flats, which may result from careless handling.

This new device can be applied to any card, and although developed as a refinement of the Firth centralized dustless card stripping and cleaning system, will be supplied to mills stripping by the old method. It has the same advantages under the old conditions, making the work absolutely fool proof as far as damage to parts through carelessness is concerned. The device requires no attention after fitting, not even oiling, as it is fitted with an oilless bearing for the stripping brush journals.

JIG FOR SAMPLES

Dyeing Machine for Use in Laboratory or Dye House

Every dyer and finisher is handicapped at times with samples which require more attention than the mill's usual lines, and slow up output. The practice of putting them through the regular equipment is often wasteful in steam and materials, and taken altogether sample work is not viewed with any



JIG FOR DYEING SAMPLE PIECES OF COTTON GOODS UP TO 10 INCHES WIDE

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Special attention given to the execution of orders on the above exchanges.

Your loom expense can be reduced

by using repair parts made up to the same standard as the looms themselves. It's poor economy to put cheap parts on expensive looms.

Increased production is imperative, but that's hard to get if your looms are ever and eternally being stopped for repairs. Every time one of your looms is idle for only a few minutes, your production suffers.

This Company, realizing the demand for good supplies, can furnish any quantity of guaranteed hickory parts, and we absolutely stand back of our goods. Our supplies are good enough for the best looms.

A generous supply of samples will be sent if dimensions are furnished.

Southern Bending Co.

Johnson City, Tenn.

great amount of enthusiasm, particularly when production is wanted. The tendency is to take this work out of the regular departments and treat it on special sample equipment, under conditions more suited to it. In dyeing textiles, sample equipment is largely used by the dyestuff concerns so that the development of machines for handling samples in the mills involved no radical principles or improved ideas.

In this connection the dye jig shown in the accompanying illustration, which has been brought out by the Cummings Machine Works, 110 High street, Boston, is of interest. It is a development of machines that the company built for dyestuff dealers, in fact the original specifications, which have now been improved upon, were prepared by a dyestuff house. It is designed for the purpose of dyeing sample cotton goods up to ten inches wide, and can be used either in the mill laboratory or in the dye house. Several mills that have installed the device report that it is admirably adapted for their sample work.

The kettle is made of cast iron, and the dye bath may be heated either by steam or gas from regular steam supply or any handy gas line. All bearings are machine finished. The jig is provided with a waste pipe, rollers and a reverse gear mechanism. Tension on the goods is regulated by weights suspended from the levers on the upper rolls, and the direction of travel is conveniently changed by the lever shown in the foreground. The three rolls in the bath are made of wood. The driving rolls are rubber, and squeeze the superfluous liquor from the cloth. The machine is finished in either black or battleship gray, and may be installed either in the mill laboratory, in a corner of the dye house, or in any convenient place.

SINGLE STRAND TESTER

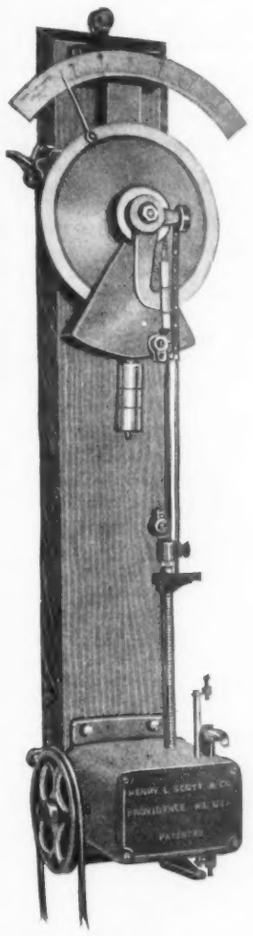
Power Operated Machine for Accurate, Authoritative Work

Men who are experienced in textile testing know that the elimination of all human influences is necessary for accurate work. Absolutely comparable results cannot be obtained where physical testing devices are operated by different men, or by the same man at different times. Recognizing this fact, Henry L. Scott & Co., Providence, R. I., have brought out the single strand tester shown in the illustration, which is power operated and makes tests automatically.

The general construction is much the same as in the hand operated single strand testers built by the company. The recording head, back-board clamps and stretch measuring device are identical, the difference being in the means employed to produce the stretching movement. This tester may be driven by a round belt from the line shafting or operated by individual motor.

The entire stretch mechanism is contained in a cast iron case fastened to the back-board. The downward or stretching stroke is started by lifting the lever at the right of the case. The draw bar or stretching screw moves downward at a definite rate of speed, passing through the gear box without revolving, breaking the sample in its travel. Upon reaching the end of its stroke it reverses and returns to its original position where it automatically stops, ready for another sample. The length of stroke and length of sample are determined by the adjustment of two stop collars or dogs at the top and bottom of the stretching screw.

The drive is transmitted from the pulley through a system of gears to two worms which engage alternately with a worm gear operating the stretching screw. The reverse is obtained by disengaging one worm and engaging a second worm on the opposite side of the



POWER OPERATED SINGLE STRAND TESTER

gear. This mechanism is packed in grease, runs absolutely noiseless, is of heavy construction, and is capable of many years of continuous service.

Less than one minute is required to make a complete test and reset the machine. It is made in 10-pound capacity by ounces; 20-pound capacity by ⅛ pounds; and 50-pound capacity by ¼ pounds. The net weight of the machine is 82 pounds.

MARKING MACHINE

Aids Manufacturing and Improves Appearance of Finished Goods

A useful machine for textile manufacturers has been brought out by The Hero Manufacturing Co., Philadelphia, Pa. It is known as the Peerless marking machine, and may be used to mark goods in process, to mark cartons or containers, labels, tags or work tickets, and to reduce outside printing bills by printing tags and tickets used in the plant. Simple changes are all that are required in putting the machine on different classes of work, and these changes are easily and quickly made. The machine has a large capacity and in one plant where it is used for stamping neckbands is turning out 4,000 dozen per day.

The importance of putting good marks on finished products is well known to some textile manufacturers. Marks of good quality are a very effective selling aid. This is a fact which is more generally understood in the knit goods trade than in other sections of the textile industry, but the tendency is for all textile manufacturers to mark goods attractively wherever it can be done. For this class of work the Peerless marking machine is especially well adapted.

In making up many goods or batches the use of tags or work tickets is customary. The Peerless marking machine is finding considerable use in taking the place of these tags or work tickets by stamping the necessary information on the goods themselves. In marking cartons or other containers, whatever information is desired can be rapidly and attractively printed. A special head is supplied for some uses in which any kind of printer's type can be set.

IMPROVED FOUNTAIN

Hygienic Drinking Head That Is Economical and Reduces Squirting

Exhaustive tests on drinking fountains have resulted in the bringing out of a new type by the Rundle-Spence Manufacturing Co., Milwaukee, Wis., which embodies many new features. It gives what is called the "vertico-slant" stream, which is a stream of minimum slant, but one that insures all the water falling to one side. The aim is to give the greatest freedom from possible contamination. It possesses the copious drinking feature of the vertical stream, and obviates the necessity of a separate valve for drawing water to fill a glass or cup, a convenience in hospitals, offices, factories or picnic grounds, as the slight angle makes it possible to fill an individual drinking vessel as readily as from a faucet.

Objection raised to the possibility of contamination from the hood wherein the corner of the mouth may readily touch it has been overcome. The recess or well feature used makes it possible to dispense with the hood, as the location of nozzle is such that it cannot be touched with the lips. Its location also reduces the possibility of squirting to the minimum. The nozzle opening extends slightly above the sloping base of recess, so no foreign matter can run into it from the walls of the bowl. The well rounded corners of the recess, with its wide mouth opening into bowl, makes it possible to clean all parts easily.

By dispensing with the detachable drinking head and making the fittings so they can be removed only by one equipped with the necessary tools, tampering and pilfering is prevented. The 3/16-inch nozzle opening used is very economical in water consumption.

EXPANSION MANDREL

For Any Material That Is Wound on Paper Tubes

The Globe Manufacturing Co., 2009 Kinsey Street, Philadelphia, has brought out an expansion mandrel that is being used at the present time by several concerns with great success for yarn, twine, paper, cloth or any material that is wound on paper tubes. They make these mandrels in any size from ½-inch diameter up to 4 inches diameter, and in almost any length to suit the uses of the purchaser.

No adjustment is required by the operator, therefore there is no loss of time as where the operator has to hold the spindle with one hand while tightening up the screw in the mandrel with the other hand. All the operator has to do with this new mandrel is to simply push on the paper tube and the tension of the yarn or other material being processed expands the mandrel, the tighter the tension on the yarn, the tighter the mandrel holds.

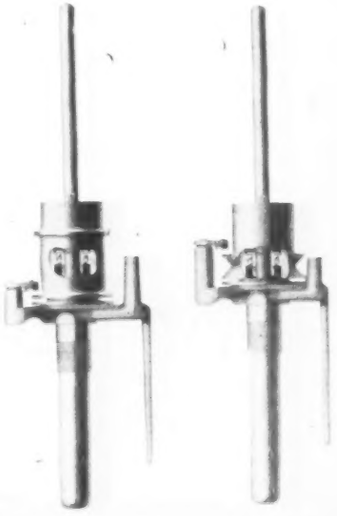
It is stated that reports have been received from several concerns indicating that the saving in labor and yarn on this mandrel is from four to six per cent. Lighter tubes can be used to advantage, as the tubes are not marred and can be used over and over again.

TWISTER SPINDLES

Replace Old Spindles Without Change of Rail, Bobbins or Drive

In satisfying the increasing demand for production at greater speed, less cost, and of better quality, the ball-bearing spindle as applied to twister frames bids fair to play an important part. More or less doubt at first existed as to the worth of this comparatively new spindle; but the day of experiment has passed, and it now stands justified as being able to more than make good the claims of its champions. Its further adoption is now given a distinct impetus by the organization of the Allen Spindle Corporation, 80 Boylston street, Boston, Mass. The new concern has placed on the market a type of ball-bearing twister spindle combining and co-ordinating the qualities which insure its meeting all the exacting requirements.

The ball bearing has been substituted for the plain journal in the upper part of the spindle bolster at the whorl. This relieves all rubbing friction in the spindle. The type of ball bearing used has two rows of balls of self-aligning construction which permit the entire weight of the spindle and spool to be supported by the ball bearing. In so doing the spindle tip is relieved of the duty of acting as a step bearing at the bottom; it runs in a clear hole surrounded by oil. The design of the spindle was tried out on a few frames, and won instant success, and it is stated many thousands have been in successful operation without defect or failure.



BALL BEARING TWISTER SPINDLES

It Takes "PAINT" Plus Glass To Solve the Lighting Problem

ASK us to give you full information about the many great textile mills where Hampden ***"Sunray"*** Mill White Oil Paint has been used to complete the scientific lighting system.

Hampden ***"Sunray"*** Mill White is a long lived, snow white, oil paint with a firm elastic surface which resists vibration. It diffuses a high percentage of light and is washable like tile.

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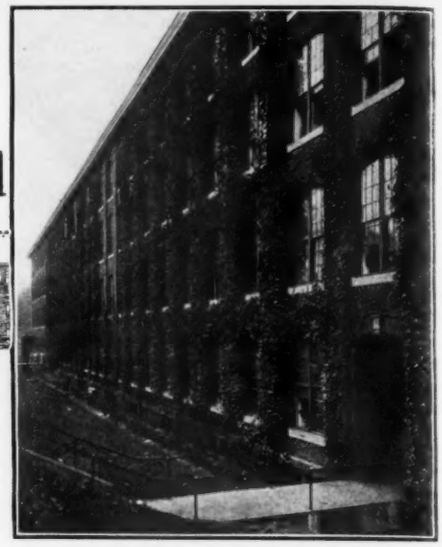
Built *in* 1881 *a* Model Mill *today*



"BUILDING WITH FORESIGHT"

BACK in the 70's Captain E. A. Smyth decided to build a mill in upper South Carolina. The village of Pelzer was selected. Captain Smyth knew the importance of engineering—he wanted the best.

The directing head of Lockwood, Greene & Co., Amos D. Lockwood of Providence, R. I., was the outstanding mill engineer of his day. The Pelzer Mill pictured above was designed and built in 1881 under his direction. It has since been in continuous operation and compares favorably with mills planned many years later.

The Pelzer Manufacturing Company has grown steadily to its present capacity of 3100 looms. Pelzer sheetings have gained a fine reputation at home and abroad.

Lockwood, Greene & Co. remain the engineers of this company in 1920, as they were in 1881. The passing of the years is the severest test—only sound engineering will bear it. Write for our booklet, "Building with Foresight."

LOCKWOOD, GREENE & CO.

ENGINEERS

BOSTON, 60 Federal St.
NEW YORK, 101 Park Ave.
ATLANTA, Healey Bldg.
DETROIT, 45 Washington Blvd.
CLEVELAND, 417 Bangor Bldg.
CHICAGO, 38 S. Dearborn St.
HARTFORD, 27 Lewis St.

LOCKWOOD, GREENE & CO. OF CANADA, LTD., 285 Beaver Hall Hill, Montreal
COMPAGNIE LOCKWOOD, GREENE, 47 Ave. de L'Opera, Paris, France

The ball bearing used is necessarily of a size to suit the diameter of the spindle blade. The size thus determined is from ten to fifteen times as large as actually required to carry the spindle load, with the result that the ball bearing itself shows no wear after long continued running.

Tests on ball-bearing spindles running alone have shown 30 to 33 per cent. power saving. Under operating conditions in the mill, because of the frictional losses through the entire frame, the total savings net 12 to 18 per cent. Spinning and twisting conditions vary so widely, however, due to traveler weight, top roll weight, speed, twist, etc., that power savings from ball-bearing spindles also vary; but a 15 per cent. saving of the total power consumed through the frame is estimated.

There is nothing radical in the design of the product which follows tried and proved practice. The spindles can be applied to old frames, being made to exactly replace old spindles without change of rail, bobbins or drive. It is pointed out that because of the easy running of the spindles, they will produce yarn of full theoretical twist and give uniformity and strength of product.

BI-LATERAL FIRE HOSE

Construction That Prevents Cracking and Increases Life

Fire hose as commonly manufactured is made round, and the rubber lining where it is attached to the cotton jacket is cemented fast around its entire periphery. Before the hose is shipped from the factory it is flattened for handling, and this is the condition during practically all its life. This flattening pinches the rubber lining at each edge, causing it to wear out while the jacket is still in excellent condition. In about a year the rubber lining begins to oxidize, and the days of service then depends upon how many times the hose is used or hinged, like the act of breaking a piece of tin by constant bending. It is estimated that to discard hose because the lining has become useless is to waste 90 per cent. of the service of the cotton jacket.

The Bi-Lateral Fire Hose Co., 326 W. Madison street, Chicago, Ill., has developed a new construction known as the bilateral fire hose, which, it is claimed, cannot crack when flattened, or break when inflated. They cement the rubber to the interior of the fabric at two sides in such a manner that the tube when flattened is forced into three curves. In addition to using this construction in new hose, they can apply it in rehabilitating old hose at a great saving over the cost of new. The outside jacket is re-used and into this is drawn a new single hose bi-laterally constructed, which will stand a pressure of over 300 pounds. The same couplings are used and the hose is returned with a four-year specific guarantee.

STARTING SWITCH

Quick-Made and Quick-Break Type—Safety Features

One of the new devices brought out by the Westinghouse Electric & Manufacturing Co. during the past year is an interesting switch, designed for use where squirrel-cage motors are started with a full line voltage. The switch is known as the Quick-Make (and quick-break) Starting Switch, Type 816. Its characteristics are 10 to 100 amperes, 25 H. P. maximum, three phase, 220, 440 and 550 volts.

This switch is extremely flexible in its applications; in addition to being a motor starting switch it can also be used to control feeder circuits; it may be supplied in any of the following combinations, each having the "quick-make and quick-break" feature, for either hand or shipper-rod operation:

(a) Non-automatic switch.

(b) Switch with low-voltage protection.

(c) Switch with inverse time element overload protection.

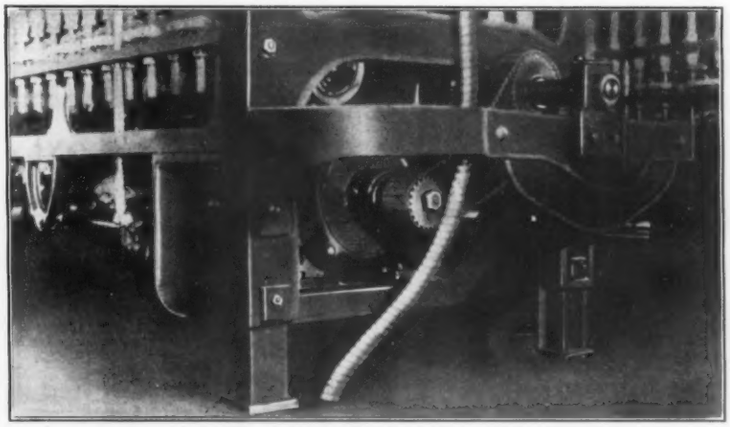
(d) Full automatic switch with low-voltage and inverse time element overload protection.

It is especially suitable for shipper-rod operation on account of the positive action of the contacts. It is impossible for the operator to retard the motion of the contacts after they have started to close; there can be no "teasing" of the contacts. Workers may start the motor-driven machine with the same starting motion they use in shifting belts; there are no confusing details to learn.

SPINNING FRAME DRIVE

Motor Placed Under Frame — Device Rigid and Saves Space

The illustration reproduced herewith was taken in the plant of the Necronsett Mills, Cumberland, N. C., and shows the Corley spinning frame drive, which is an entirely new device so far as spinning frames are concerned. The drive was originated and developed by Clifton Corley, general manager of the Necronsett Mills, and this plant was the first mill equipped with it. The motor is placed under the frame and connected by a Morse chain to the cylinder shaft.



CORLEY SPINNING FRAME DRIVE; MOTOR OUT OF THE WAY AND IN A PROTECTED POSITION

The advantages of the device are well brought out in the illustration, but it may be of interest to consider some of them in detail. The first striking feature is the rigidity of the device, the motor support being itself a truss. Next it is noted that the motor is out of the way, in a protected position where it takes up no space that is useful for other purposes, and that it leaves the alley unobstructed and perfectly clear for its original purposes. With older forms of drives the alleys are often closed up, or if not closed they might well be, as the motors project in such a manner that should the alley be used for trucking, as is commonly the case, the motors would be in constant danger of injury.

The drive includes a cast iron case which enables the chain to be run in oil if desired. The chain cases had not been installed when the photograph was made, but upon an examination of the illustration it will be evident where they belong.

IMPROVED FILLING WINDER

Runs One-third Faster and Requires Less Space and Power

Cop and butt winders have been built by F. A. Lazenby & Co., Baltimore, Md., for the last fourteen years, and are largely used in the United States and Canada, particularly by mills making duck and other heavy goods. With war conditions, scarcity of labor and the greater use of automatic looms a condition arose where a bobbin winder with a bunch builder attached was demanded, and the Lazenby Company set itself to the task of building an improved winder to handle work in cop, butt and bobbin form. This machine has now been perfected, and thoroughly tried out in mills, and is being brought to the attention of the trade generally.

The improved winder is designed along lines of efficiency in turning out a large output with very little help, durability, ease of operation, and economy of floor space and power. It runs one-third faster than the old winder and with less noise and power. Less floor space is required. In getting these results other points of merit have not been sacrificed. The units are built twelve spindles to a frame and each spindle has its own mechanism receiving power from a main shaft through a straight belt. The machine is driven either by belt or direct-connected motor. The main shaft runs in self-centering S. K. F. ball bearing cases, and among the other improvements for effecting power savings are oilless bearings in the spindles, gear shafts and loose pulleys. These have proved their merit and after a year's running day and night, show no appreciable wear.

The tensions used on the improved winder are simple but effective, and are being used successfully in mills weaving cloth varying from the finest cotton to the heaviest jute yarns. The stop motions are positive and the adjustments for change in size of filling are simple. For automatic looms, the machine is equipped with the bunch builder, which is unique in design and overcomes the strain on the yarn as it passes over the sharp angle made by the feed lever when the guide finger is holding the yarn in the bobbin groove.

THREAD DRAWING MACHINE

Large Saving in Labor—Simple in Construction and Operation

A thread drawing machine for extracting threads from sheetings, damasks, linens, etc., has been brought out by John W. Eshelman, Jr., of Lancaster, Pa., that should make a strong appeal to manufacturers of hemstitched sheets, pillow slips, table linens, etc., on account of the large savings in labor that it accomplishes, and the quality of work turned out. It has been adopted by many of the mills making these classes of goods, and reports received substantiate the builder's statements as to its effectiveness.

The device will extract either warp or filling of a sufficient width for hemstitching at the rate of 150 yards per hour, which is fully fifteen times the amount that can be extracted by a hand worker. It is very simple in construction and operation, no special care being required in tending it or for maintenance. The manufacturer points out that mills doing common hemstitching can produce much more desirable work at very little additional cost with the machine.

HOSIERY DRYER

Removes Superfluous Moisture from Goods Before Boarding

A textile dryer has been brought out by the American Laundry Machinery Co., Cincinnati, which works on a different principle from the dryers now on the market, and is used principally in hosiery mills for removing superfluous moisture from heavy grades of hosiery before boarding.

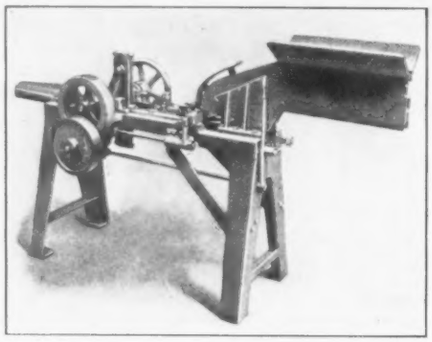
The hosiery is taken to the textile dryer directly from the extractor and placed in the inner cylinder, which is constructed of a fine meshed, non-rusting, galvanized, woven wire. Here the goods are tumbled about in an induced current of warm air until the proper amount of moisture has been removed, and they are in the right condition for boarding. This gives them a soft, lustrous finish and tends to overcome any slight defect in knitting. The appearance of the product is improved, time is saved in drying on the forms, and the boarding process is speeded up, due to the hosiery being in better condition for the process.

The dryer can be operated by any mill hand, as no skill is required, and the machine calls for very little power and a small amount of steam. It may be either motor or belt driven. Sizes are made for plants of all capacities, whether the output is large or small.

PATENTED JACKSPOOL

Unusual Strength and Freedom from Annoyance in Operation

Mill men who have experienced the annoyances of broken jackspool heads, and heads that turn and become loose on the barrel will welcome a product brought out by the Vermont Spool & Bobbin Co., Burlington, Vt., for the design particularly provides against these conditions. The three-ply head of durable wood guarantees strength and freedom from warping, splitting and breaking, except in case of accident, and the



"UTSMAN" QUILL CLEANING MACHINE

Its Semi-Automatic Feed

This little device adds very materially to the output of the machine by reducing to a minimum the work required of the operative. All the operative does is dump the bobbins into the hopper and guide them into the chute. The *feed* does the rest.

In addition there are several other improvements, all of which make the "Utsman" the simplest and most efficient machine ever built for the purpose. Cleans any standard automatic loom bobbin.

Two Models—Single-end (illustrated) and double-end

Send for catalog

The Terrell Machine Co., Inc.

Charlotte, N. C.

THE BEST TRAVELERS

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Indisputable Superiority

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MILLBURY, MASS.

Successors to H. W. Hakes Mfg. Co.

Manufacturers of

Williams Standard Wire Heddles

HAKES HEDDLE FRAMES

Tempered Steel Wire Heddles for all kinds of Plain and Fancy Weaves, Iron or Wood End Harness Frames, Power Loom Shuttles, Reeds, Bobbins, Spools, Etc., Etc.

Try Our New Hand Threading Shuttle, Best in the Market

THE ONLY FLYER PRESSER MANUFACTURERS IN THE SOUTH

TEXTILE MACHINERY

Manufactured, Overhauled and Repaired

WE MANUFACTURE

Steel Rolls, Flyer Pressers, Card Room Spindles, Lifting Rods, Etc.

WE REPAIR

Steel Rolls, Spindles and Flyers of All Kinds

WE OVERHAUL AND REARRANGE

Card Room Frames, Spinning Frames, Twisters, Spoolers, Etc.

SOUTHERN SPINDLE AND FLYER CO., Inc.

Charlotte, North Carolina

W. H. MONTY, *President and Treasurer*
W. H. HUTCHINS, *Vice-President and Secretary*

manufacturers claim it proves 50 per cent. more durable than two-ply. In case of accident there are no threads on tension to strip if the head breaks, and a good end is left for a new head.

In addition to the above feature the manufacturers call attention to the following points: A long tapered stud fitted to a tapered hole prevents the gudgeon from wearing the hole and becoming loose. The extra long half-round nut cannot be drawn into the wood or become loose. It eliminates the necessity of a check-screw. A feather fits tightly into a slot in the head and the barrel, preventing the head from turning on the barrel, thereby loosening the fastening. A key prevents the gudgeon from getting loose and insures stability; it cannot turn. The entire construction is based on long study of jackspool requirements, and every part is designed to give long service without attention from either the worker or the mill repair department.

IMPROVED FULLING MILL

New Packing Box Construction Eliminates Brass Flanges

Two important improvements in fulling mills have been developed by Rodney Hunt Machine Co., Orange, Mass., and are embodied in their latest machines. One is a patented packing or crimping box construction in which wear strips eliminate brass flanges and hold the goods under the press rolls in such a manner that the necessary wear will not cause the goods to catch and nip. The second improvement is also patented and consists of means for applying pressure to the packing box cover, and varying it to suit the goods being run.

Wear Strips Adjustable

The sides of the packing box, in the new construction, extend past the rolls for holding the goods under the press rolls. In these extended sides the wear strips are inserted and the latter are easily and inexpensively replaceable so that there is little temptation to leave them in place too long. The bottom plate, which comes up against the press roll, can be adjusted several times as it has but one wearing edge, there being no wear on the sides with flanges.

The improved means for applying pressure to the packing-box cover gives a positive and reliable pressure varying from the very lightest to the very heaviest for different weaves or weights of goods and may be adjusted to give the same results when fulling.

INSPECTION MACHINE

Inspects, Turns and Counts Hosiery at One Operation

A new inspection machine has been brought out by the Paramount Hosiery Form Drying Co., Chicago. By the use of this device inspecting, turning and counting are done at one operation, giving an increase in production. The machine requires no expert attention, is built so there is little if any wear, and is inexpensive.

Simple, Self-Contained Device

The machine is a flat aluminum casting mounted in a horizontal position on a shaft and free to turn. The shaft runs on ball bearings and is carried by a malleable iron casting. It is all metal, but is light in weight, simple and sturdy in construction. The ball bearings are an especially valuable feature. They are permanently lubricated before the machine leaves the factory and require no attention. They make the board turn with practically no effort on the part of the operator.

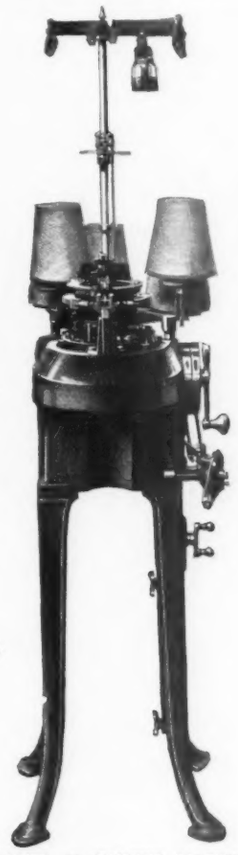
As the operator turns the stocking over to inspect both sides she automatically operates a counting device. This is used to check the count of dozens of the knitter or other department from which the goods come to the inspector. As the operator removes the stocking from the form she holds the toe with her left hand and with her right hand turns the stocking ready for the looper. Thus she accomplishes three operations with practically the work of one. The counting device is very simple and if let alone will never get out of order. It has large figures so that the foreman can easily check an operator and make sure she is counting her goods.

The standing and counting device are the same for all classes of hosiery. Any form may be put on any stand. There are four different and distinct forms.

NEW HOSIERY MACHINERY

Of Revolving Cylinder Type, with Five Yarn Fingers

A new knitting machine known as Model H has been brought out by the Standard Machine Co., 335 North 12th street, Philadelphia. It is of the revolving cylinder type, having five yarn fingers, one of which may be used for



MODEL H HOSIERY MACHINE

making the double sole and another for plating if desired.

The greater part of this machine was designed and invented by Harold E. Houseman, who, upon his father's death in December, 1916, became the head of the mechanical department of the Standard Machine Co. Mr. Houseman, after studying mechanical engineering at college, worked with his father for five years, during which period other models were designed, and he thus received the benefits of his father's twenty-five years' experience. As a result this new model, it is claimed, represents a decided advancement over all previous models produced by this company.

New Machine Throughout

The new model differs radically from all other hosiery machines in appearance, design and mechanical movements employed. It is very narrow, having an extreme width, including pulleys and handle, of only 15½ inches. All movements are taken from a revolving disc on the knitting head.

One of the chief features is a new reciprocating movement which produces high heel and toe speed, and consequently a large production, and yet permits the pickers to operate with an ease and with a factor of safety that is exceptional.

Another feature is a positive system operated from cam blocks, which changes yarns without the aid of springs, working satisfactorily at all speeds, and which is so flexible in its construction that a complete change of pattern may be made in about two minutes.

STOP MOTION ATTACHMENT

Operates When Yarn Breaks at the Carrier—Saves Waste

A recent development of considerable interest to manufacturers operating knitting machines is the new stop motion attachment which has been brought out by the Crawford Manufacturing Co., New Brunswick, N. J. It is a new type E. O. stop motion attachment, which is designed to work in conjunction with their regular stop motion. It will operate when the yarn breaks at the carrier, thus saving the waste due to rundowns or quarters off.

One of the noticeable features of the attachment is that it can be very readily and quickly installed on all makes of circular rib knitting machines, either revolving or stationary, and requires no special fitting or machining.

AIR-DRYING SLASHER

Yarn Dried in Hot Air Chamber Instead of on Usual Cylinder

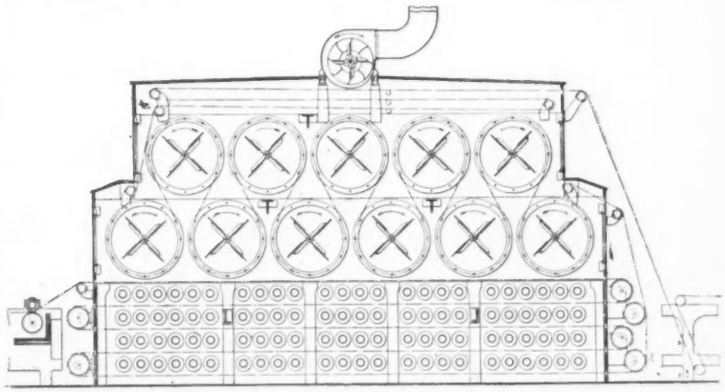
Several English cotton mills have recently installed what is known as a revolving swift air-drying sizing machine in place of cylinder slashers, believing that the results secured are superior to those obtained by cylinder contact. Improved methods of conveying the warp through the machine are said to have been perfected, which avoid any reduction in the elasticity of the yarn, and it is claimed that 25 per cent greater production is being obtained. The illustration shows details of the drying chamber of the new machine, which has been brought out by Howard & Bullough, Ltd., Accrington, England.

The beam creel, the size box, and headstock are all of similar construction to the builder's cylinder slasher machines, the drying chamber only being different. The course of the yarn through the machine can be traced in the illustration. Thus, entering at the left it passes the full length of the drying chamber over the top row of heating pipes, then between the different rows to be guided upward and thence in zigzag order almost completely around the revolving swifts mounted in staggered order, then three times the length of the drying chamber and out at the right, the headstock end of the machine. Here the whole sheet of warp is in full view of the attendant.

The principal part of the drying is effected while the yarn is traversing about and between the heating pipes, and is completed on passing around the swifts, which also help to mellow the yarn, so that it is delivered in the right condition to the beam. The swifts are skeleton structures, built up by end annular rings connected together by twelve cross rods which contact with the yarn in the manner shown. Built of this fashion the swifts allow unimpeded passage to the hot air which is constantly radiating and arising from the hot pipes below. In addition to this the hot air is directly thrown into the inside of the sheet of warp threads by the action of an internal fan mounted inside each swift.

A special feature of the machine, and one having considerable technical importance, is the provision made for insuring that the yarn is not stretched. This is accomplished by mounting all the guide rollers around which the yarn passes in ball bearings. The swifts are also mounted in a special type of ball bearing, while the inner fans are mounted on self-lubricating bearings.

The drying chamber has glass sides and ends so that the attendant may watch the progress of the yarn. Hinged doors or wood casings give convenient access to all bearings and valves. The steam pipes are enclosed by wood casings, made in sections that can easily be moved if required. Facility is provided for keeping the warps, temperature, etc., under complete control. Provision is made whereby the side shaft can be temporarily disconnected to tighten up the yarn inside the machine, while the sow-box is stopped. A thermometer records the temperature inside the drying chamber, and a steam gauge is provided.



DIAGRAMMATIC SIDE VIEW OF DRYING CHAMBER

Tentering and Drying Machines

for **Woolens**
Worsteds
Felts

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Crabbing Machines

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An Unusual Record

During 1919 more FRANKLIN DYEING MACHINES were sold than in the previous eight years combined—over 175 machines in one year.

At present we have orders for 60 machines—a large number of these repeat orders.

The Reason

First—A dyehouse neat and clean with no steam in the air.

Second—50% to 75% less handling and less labor.

Third—A very short or concentrated dye bath, using much less steam, chemicals and dyestuffs.

Fourth—About one-half the floor space needed for the old forms of dyeing.

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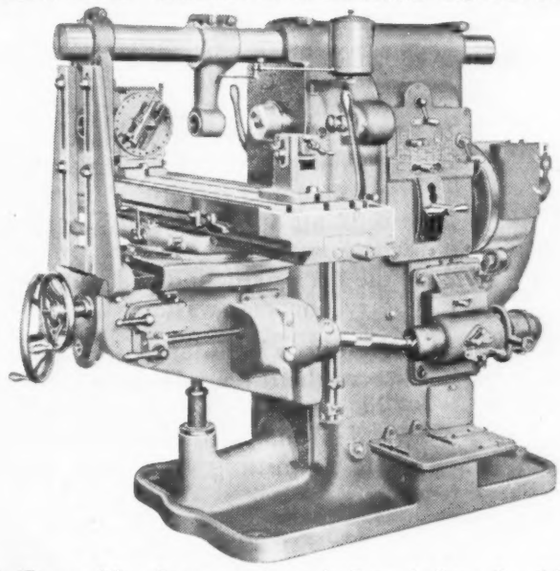
WHITINSVILLE SPINNING RING CO.
WHITINSVILLE, MASS.

BROWN & SHARPE MILLING MACHINE



WE respectfully call your attention to the Brown & Sharpe line of Milling Machines carried by us.

The machines are the accepted standard among engineers and manufacturers both in this country and abroad—have been for over fifty years.

The original Universal Milling Machine was invented by Brown & Sharpe in 1862 and patented in 1865.

Fifty-odd years' experience in the manufacture and use of Milling Machines explains to some extent the success and prestige accorded these machines.

A request brings a Milling Machine Book.

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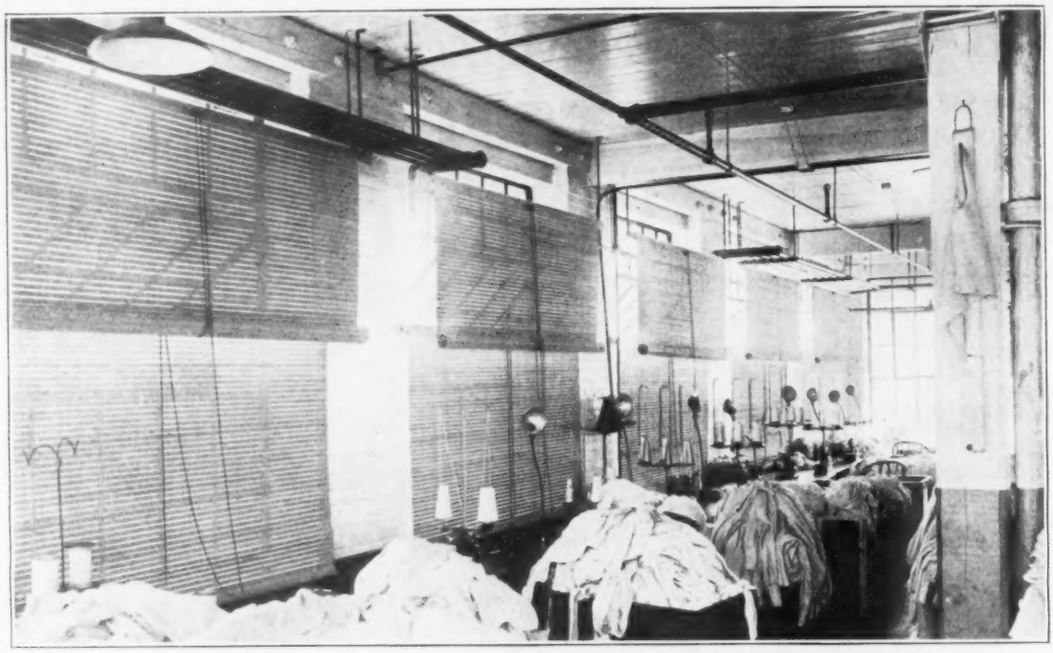

Duplex Type of Aerolux Ventilating Window Shades Used in The Dunham Mills, Naugatuck, Conn.

Properly Handled Daylight an Efficiency Factor

Adequate natural lighting of factories is essential in providing a working environment favorable to production. But to serve most efficiently sunlight must be properly handled—or else the vast glass walls of the modern factory, sun exposed and unshaded may produce eye strain and uncomfortably high temperatures, ruin merchandise or throw delicate mechanisms out of adjustment by great temperature variations—all of which diminish the net production and cause an unnecessary financial waste.

Aerolux Ventilating Window Shades serve the three fold purpose of excluding the sun's direct rays, admitting sufficient and properly distributed working light, and permitting ventilation through open windows. Owing to the heat insulating qualities of Aerolux fabric and to the myriads of ventilating spaces, the temperatures of sun exposed rooms may be lowered from 5 to 15 degrees.

A variety of types has been evolved to meet different conditions. The Duplex Type as above illustrated is used where shades must occupy a minimum of room space. The upper section clears the ventilator, but does not interfere with workers or machines crowded close to the windows. The two sections operating independently permit any desired lighting effect.

Our Engineering Department is at your service and will gladly assist in solving your problems.

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